

# COALAGE



**P**OWER losses occur in two places—in the bearings and in the “mesh.” Accurate machining and scientific lubrication have reduced bearing losses to a minimum.

How about power losses in the “mesh?”

Falk engineers, by numerous refinements in design and cutting methods, have turned out a herringbone gear drive that reduces power losses in the mesh to less than  $\frac{1}{4}$  of 1 per cent.

The staggered tooth is one feature that makes this possible when using the semi-fluid lubricants which experience has proved to be desirable for heavy duty service. This type of tooth allows the lubricant to spread itself evenly over the entire face of the gear without clogging the center.

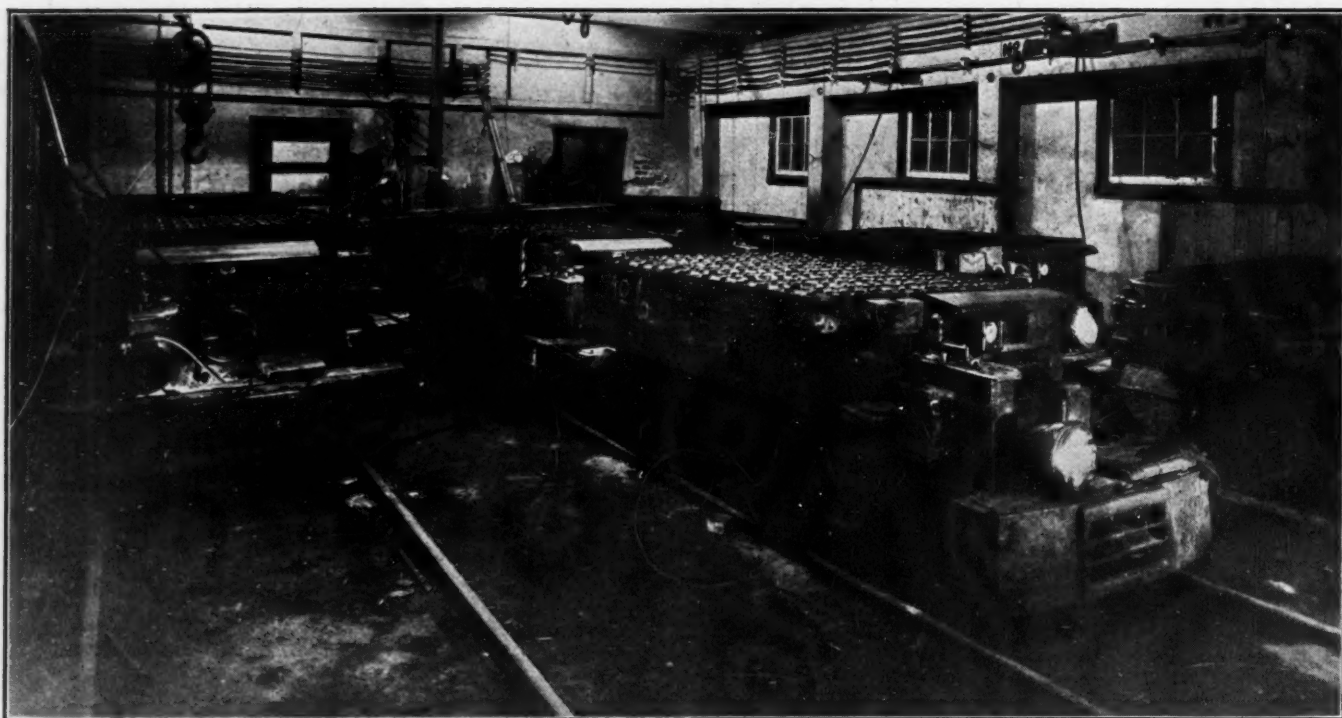
Falk hobbed gears, produced on special machines with a patented system of compensated division, have the highest accuracy obtainable combined with tooth strength far in excess of the requirements for absolute safety.

Single reductions of 20:1 are quite usual.

Consider the fact that hundreds of manufacturers using herringbone gears in their machines have standardized on Falk Gears. There must be a reason for this ever-increasing popularity.

*Write for engineering data*

**THE FALK CORPORATION**  
MILWAUKEE



*Interior of charging barn at Rossmore Mine, formerly Logan Mining Company, West Virginia, but now owned by West Virginia Coal & Coke Co., where are six of twenty-five motors equipped with Exide-Ironclad Batteries.*

## Taking their daily charge

*They fill up fast, these Exide-Ironclad Batteries, but their need is small*

SO efficient in the charging barn is the Exide-Ironclad that its need for current is small.

If there's no time for a leisurely charge, you can crowd current into this battery fast. Its monthly charging cost is comparatively low, for it needs surprisingly little current.

Outside the charging barn the Exide-Ironclad is an efficient battery too. It hustles

the coal along at a good speed, right up to the end of the shift. Few are the grades that can stump it, even with a heavy trip; for the Exide-Ironclad always carries a reserve of power that can be delivered in a flood if needed.

Repairs are almost unknown, for the Exide-Ironclad is rugged—built for mining work. Its life is long and its first cost reasonable. Hundreds of leading coal mines have cut their haulage costs with this battery. You should know more about it. Send for a free copy of our booklet, Form 1791, "Facts for Consideration in *Selecting a Battery for Locomotive Service.*" It is worth reading.

**Exide**  
**IRONCLAD**  
**BATTERIES**

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

*Exide Batteries of Canada, Limited, 153 Dufferin Street, Toronto*

**E. W. DAVIDSON**  
Managing Editor  
**FRANK H. KNEHLAND**  
**E. J. GEALY**  
**J. H. EDWARDS**  
Associate Editors

# COAL AGE

**A. F. BROSKY**, Pittsburgh  
**LOUIS C. MCCARTHY**  
Assistant Editors  
**PAUL WOOTON**  
Washington Correspondent

With which is consolidated "The Colliery Engineer" and "Mines and Minerals"  
**R. DAWSON HALL**, Engineering Editor

<b>Drowning a Mine Fire in Carbon Dioxide</b>	453
BY CHARLES H. STRANGE.	
<b>History Records How Miners' Union Got Strangle</b>	
<b>Hold on Central Competitive Filed</b>	459
BY SYDNEY A. HALE.	
<b>Modern Mining Community at Fushun, Manchuria</b>	463
<b>New Strike Move in West Virginia Launched with</b>	
<b>Parade and Speeches</b>	464
<b>Operators Reiterate Stand; Miners Reject Arbitration</b>	
<b>in Hard-Coal Controversy</b>	465
<b>Strikers Encouraged by Public's Failure to Prepare</b>	
<b>For Long Strike</b>	467
BY PAUL WOOTON.	
<b>Murray Generalizes</b>	464
<b>Britain's Coal Peace Short Lived; Volunteer Body</b>	
<b>Prepares for Strike</b>	465
<b>Alberta Strike "Settled"</b>	465
<b>Coal Mine Accidents Killed 195 in August;</b>	
<b>Rate Below Last Year</b>	466
<b>Miners Vote to Postpone Convention Till 1927</b>	466
<b>Neekamp to Urge Canal from Kentucky to Lakes</b>	466
<b>Picnic Spirit Still Prevails</b>	467
<b>Handle Coal Ten Times in 15 Miles</b>	467
<b>Kentucky Still Fights Against Wage Differentials</b>	467
<b>Seek Solution for Hazards of the Underground</b>	468
<b>Business Best Able to Regulate Itself</b>	468
<b>Herrin Blast Kills Three; Massacre Suspects Dead</b>	468
<b>Plan to Supply Coal Needs of New England</b>	468
<b>Editorials</b>	451
<b>Viewpoints of Our Readers</b>	460
<b>Practical Pointers</b>	470
<b>Weekly Review and the Market</b>	472
<b>Foreign Market and Export News</b>	477
<b>News Items from Field and Trade</b>	478
<b>New Equipment</b>	482

## McGRAW-HILL COMPANY, INC.

Tenth Avenue at 36th Street, NEW YORK, N. Y.

WASHINGTON, Colorado Building  
CHICAGO, 7 South Dearborn Street  
PHILADELPHIA, Real Estate Trust Building  
CLEVELAND, Leader-News Building  
ST. LOUIS, Star Building  
SAN FRANCISCO, 883 Mission Street  
LONDON, 6 Bouverie Street, E. C. 4, London

**JAMES H. McGRAW**, President  
**ARTHUR J. BALDWIN**, Vice-President  
**MALCOLM MUIR**, Vice-President  
**EDWARD J. MUEHLEN**, Vice-President  
**MARION BRITTON**, Vice-President  
**JAMES H. McGRAW, JR.**, V.-P. and Treas.  
**C. H. THOMPSON**, Secretary

Cable Address: "Machinist, N. Y."  
The annual subscription rate is \$3 in the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Porto Rico, Canal Zone, Cuba, Honduras, Nicaragua, Dominican Republic, Salvador, Peru, Colombia, Bolivia, Ecuador, Argentina, Chile, Spain, Panama, Brazil, Uruguay, Costa Rica, Guatemala and Paraguay. Extra foreign postage \$3 (total \$6 or 25 shillings). Single copies, 20 cents.  
Change of Address—When change of address is ordered the new and the old address must be given. Notice must be received at least ten days before the change takes place.

Publishers of  
Coal Age Engineering and Mining Journal-Press  
Engineering News-Record American Machinist  
Power Chemical and Metallurgical Engineering  
Ingénieur International Radio Retailing  
Bus Transportation Electric Railway Journal  
Electrical World Electrical Merchandising  
Journal of Electricity  
(Published in San Francisco)  
Industrial Engineer  
(Published in Chicago)  
American Machinist—European Edition  
(Published in London)

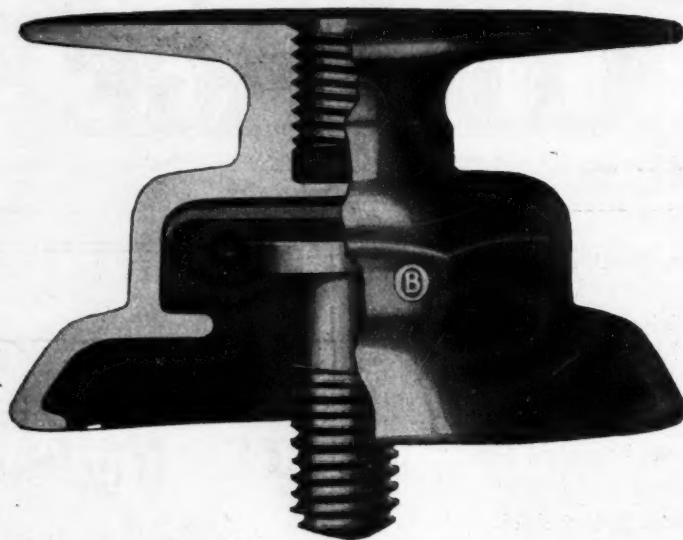
Copyright, 1925  
By McGraw-Hill Company, Inc.  
Published weekly  
Entered as second-class matter  
Oct. 14, 1911, at the Post  
Office at New York, N. Y.,  
under the Act of March 3,  
1879.  
Printed in U. S. A.  
Member Audit Bureau of  
Circulations  
Member Associated Business  
Papers, Inc.  
Number of copies printed  
this issue, 11,748

## Big Scrapers

IF THE SCRAPER LOADER is to prove itself capable of speeding up coal production and cutting costs, it will have a good chance in the Rock Springs, Wyo., mines of the Union Pacific Coal Co. There a huge bucket built by the company and operated by a rugged electric hoist is finishing its experimental period. It may convince anybody that a big scraper can adapt itself to any kind of coal, but its use certainly involves questions of roof control that every mine operator must answer for himself. The Rock Springs loader and its performance are described in next week's issue of *Coal Age* by R. Dawson Hall, engineering editor.

SYNCHRONOUS MOTORS can save money for coal companies. Unfortunately for the companies, their electrical engineers know all too little about this type of motor. Next week Edgar J. Gealy, associate editor, tells an interesting story about how synchronous motors with magnetic clutches have been applied successfully to the machinery of the Chauncey Breaker of the Lee Coal Co., Avondale, Pa. They reduce peak demands noticeably, thus reducing the company's monthly power bill which is one of the main reasons why electrical men will look forward to next week's issue.

THE SAFETY MOVEMENT periodically feels the impetus that a good, live conference of experts can give. This week such a conference is taking place in Cleveland where the National Safety Council is holding its annual convention. Some contributions to the art of making coal mines safer were made. The report of the convention appears in next week's *Coal Age*.



## *The Makings of a Good Hanger*

### **Good Insulation**

Molded O-B Dirigo Insulation that resists ALL the deteriorating forces found in a mine. Built-up mica further insulates head of stud bolt from hanger shell.

### **Good Shell**

O-B Malleable Iron—molded in the O-B Foundry where processes and materials are directed toward making the best iron possible for all O-B Products.

### **Forged Stud Bolts**

Stud bolts are forged steel—for high strength and with uniformly accurate threads.



# **TROLLEY MATERIAL**

**The Ohio Brass Company**

Mansfield, Ohio

In Canada—Dominion Insulator & Mfg. Co., Limited—Niagara Falls, Ont.

# COAL AGE

McGraw-Hill Company, Inc.  
JAMES H. MCGRAW, *President*  
E. J. MEHREN, *Vice-President*

Devoted to the Operating, Technical and Business  
Problems of the Coal-Mining Industry

R. DAWSON HALL  
*Engineering Editor*

Volume 28

NEW YORK, OCTOBER 1, 1925

Number 14

## Lewis Shows His Hand

THE LAST VESTIGE OF DOUBT that President Lewis aims to get the government to fight his battle for him is now removed. In his speech at the union demonstration in Fairmont, W. Va., marking the opening of the new strike effort in that state, he said frankly enough that since "the Jacksonville agreement was negotiated and executed with the aid and co-operation of high government officials . . . the industry has a right to expect that the moral influence and power of those same government officials will be utilized to preserve the integrity of the agreement and to maintain, in the public weal, the tranquility of the coal industry." In other words he had no solution for his problem of enforcing the Jacksonville agreement except the strike weapon and if somebody at Washington doesn't make the Pittsburgh Coal Co. and others live up to the contract, he could afflict the nation with another general strike.

There is one thing the mine owners of the country can do in defence of the industry. They can devote themselves earnestly and at once to convince the people of the land that the public weal can best be served if the citizenry and the government refuse positively and absolutely to take any hand in the controversy. Mr. Lewis may call the general strike, altogether forgetful of the public weal. It will be troublesome for a period but the nation will get a good deal of non-union coal and if no outside agency comes to Mr. Lewis' aid during that period, the United Mine Workers will ultimately cave in. No other development will serve the whole people of this nation better in this instance than a strike that fails.

Since it is impossible to compel mine workers to work if they do not approve of the contract they have, and since it is impossible to operate a mine that loses money, unless somebody makes up the deficit, popular control of mines, such as a strike-harassed nation might vision, would not relieve the country of its coal troubles. Furthermore, public control of coal would be as costly as was public control of railroads. Thus the people of the land stand to win nothing by taking up the cudgels Mr. Lewis is laying out invitingly. The most effective position they and the operators of coal mines can take today is: If there must be war, let it come. A labor force would be slow indeed to begin hostilities in the face of such a public opinion.

## Our Smaller Institutes

NATIONAL AND EVEN STATE INSTITUTES gather together only a few people outside of those who attend from the neighborhood where the institute is held. There must always be only a few who can make the longer journey to larger institutes, and consequently there is great need for local sections and chap-

ters to complete the activity and give the village or town its full opportunity.

At Rock Springs, Wyo., for instance, is an institute, a chapter of the Rocky Mountain Coal Mining Institute, which holds meetings once a month and usually listens to two papers from members. When any of its people take a trip to mines in other states or go to institute meetings in other places, they make a report of what they learned and saw and what their opinion is of developments elsewhere. Thus the views of the members are enlarged.

It has been remarked that when any town chooses its school teachers from the immediate vicinity, the teaching gradually becomes poorer in quality. In some towns the teachers come from half the states in the Union. Last year in Rock Springs were represented teachers from New York and Louisiana and eighteen other states.

Just so with institutes. They grow weaker and weaker if they do not draw their inspiration from outside. In every district there are some who travel and when they do the local institute should fertilize the narrower experience of their members with information regarding the conditions in more distant points and avoid the inbreeding of ideas, which makes progress impossible.

## Will Not Arbitrate

CLEVER INDEED, and to many convincing, is the reply of the scale committee of the anthracite miners to Walter Gordon Merritt, counsel for the anthracite operators, refusing "to arbitrate the terms and conditions that are to be written in and to constitute a contract," between the anthracite employers and their employees.

Everyone, doubtless, is quite ready to grant that a working man has a right to quit work if he doesn't like his wage and to lie idle or seek other employment unless he gets from his old employer what he believes he ought to, or can, get. He has, as the scale committee asserts, as much right as a clothing dealer to ask his own price, and most people will say more right. But the United Mine Workers must remember that this is *not* precisely the right they are seeking.

What they demand is privilege to conspire to get high wages, using the expedient of quitting in large groups thereby endangering the health of the public, and they do it in an industry where no one not already a miner is legally allowed to work. Should any one believe that the work at the operator's figure looks attractive, he could not undertake it legally, and indeed he would find it dangerous to engage in it as has often been proved, for violence is nearly always employed against those who seek such work.

Having thus combined against the public, the mine workers should submit to arbitration. When they take

corporate action they should refrain from jeopardizing public interest. Within its borders there must be no power greater than the American commonwealth. If any latitude to combine is allowed by law it must be accepted with a due sense of responsibility and utilized so that it will in no case border on oppression. That assurance will be afforded if the mine workers show a willingness to confer or to arbitrate and to work while doing the one or the other. Operators in the past have opposed arbitration, but they are learning that they cannot refuse to accept it so long as they act corporately, and the anthracite operators, made a unit by the corporate action of the mine workers rather than by any act of their own, are ready to submit the wage question to what is "practically the only peaceful solution devised for situations of this kind," to quote Mr. Merritt.

It is useless for the United Mine Workers to list instances of the determination of individuals like Rockefeller and Judge Gary or operators in a small district like Mingo as evidence of a disposition on the part of employers to act as the mine workers are doing. Such persons because they are individuals or inconsequential groups of individuals are within their rights. Moreover, these strikes did not in any measurable way injure the consumer.

The public, on most occasions where business, health and happiness are jeopardized, has called loudly for arbitration, and the anthracite operators have not been unmindful of the reasonableness of that demand. That is why they resign their rights, such as they are, and agree with the people that these difficulties with their employees should be settled without a suspension.

The Scale Committee declares that the "Coal Operators do not agree or offer to arbitrate the price at which they shall sell coal." True, the mine operators are not being asked to arbitrate their prices, and the reason is clear. *They* are not on strike. *They* have not suspended production to raise the price. If they had done so they would one and all be under prosecution or in jail. There is a rough and ready way provided to deal with such corporate action against public interest.

Nevertheless, anthracite prices have been arbitrarily fixed at times when there was no suspension of production, nor any suggestion that it was even contemplated and no semblance of proof or reasonable suspicion that any concerted action to raise prices was in contemplation. And this was done with only questionable legal justification and withal in these cases without protest from the operators affected. The public need seemed at the moment at least to many, to demand regulation, and under those conditions the operators consented and made no complaint.

### A Lesson in Double Saving

**F**REQUENTLY WE WAIT for necessity to drive us to make changes or adopt new devices. Last year, at the New Haven Machine Tool Exhibit, the induction motor load produced such overheating of the cables, because of low power factor, that many of the machines had to be shut down. This year the individual motors will be equipped with static condensers. Thus poor power factor conditions will be corrected at the source and the cables will be able to carry a much higher power load without overheating. There is a lesson in this for those who operate coal properties.

At mines uneconomic circuit conditions often pass unnoticed. More thought is centered upon the success with which the motor renders a given service than upon the efficiency with which it uses electrical energy. Even when a motor circuit begins to give trouble, the general practice is to bark up the wrong tree. If heavy wattless currents heat up conductors, larger cables are installed. When an induction motor will not develop sufficient torque, because of high voltage drops occasioned by circulating wattless currents, a larger motor is used. When the alternating-current circuit breaker opens—too frequently because of poor power factor loads supplied through it—the overload setting is raised until the switch renders no reasonable protection.

Such practices are exceedingly expensive, but, most regrettable of all, they aggravate the difficulties rather than correct them. Power factor penalty clauses in power schedules no doubt will change false reasoning in such matters. When power bills become too high, static condensers and synchronous motors will be more numerous. Then power costs will become smaller and equipment replacements less frequent and more money will be available for modernization and profit-making devices.

### Shallow Mine Fires

**A**LL THE WORK of closing off a shallow mine fire by stoppings is destroyed if the surface is not adequately policed and holes due to caves are not promptly filled. Wherever the pillars are destroyed by the fire, the roof will fall and may make openings to the surface. But falls occur in other places, due probably to the weakening of the roof consequent on falls in adjacent areas. When a piece of roof collapses to the surface directly over a burning area the gases will rise from the fire, and the atmosphere will be impregnated with sulphurous fumes. Here, however, the air is rising and consequently the fire is not being fed through these holes. It is true that such places should be filled, but it is wrong to leave unfilled the other holes where there is a connection but no fire activity, for it is just there that air probably is *entering*.

When the holes are big, pot shots along the edge will fill them up with surface material and rock. Then a scraper and shovels can be brought into operation, and surface material can be spread so as to make a good covering, which must, however, be watched day by day lest holes develop. As a fire dies, vacuum develops and the more vacuum the more active leakage. So, when the fire is down is just the time to be the more meticulous about covering it entirely. If the fire breaks out again the last condition is worse than the first.

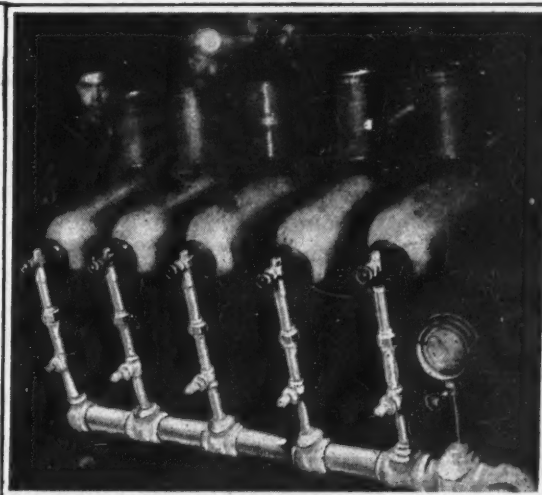
If care be not taken the fire may become so furious as to make any preventive measures difficult and even dangerous. The surface earth also may become exhausted, and other earth may have to be brought in from distant points and carried across land that may have unseen but dangerous caverns beneath. A mine fire is not to be played with, and especially is it dangerous where a tangle of vegetation makes observation difficult. In such places it would be well to remove all shrubs so that the area might be closely watched. If the fire should spread, the area to be watched and treated will soon become so large as to bring a severe burden on any company's finances and may indeed involve the abandonment of mines.

## Drowning a Mine Fire In Carbon Dioxide

Sealing Inaccessible Area Has Small Effect  
—Magazine Article Suggests Gas Attack—  
Carbon Dioxide Speedily Quenches Fire

By Charles H. Strange

Assistant to the President Pine Hill Collieries Co.,  
Pottsville, Pa.



A MINE fire is troublesome enough in a single seam of coal. In an anthracite operation like that of the Pine Hill Coal Co. near Minersville, Pa., where operations are conducted in five seams badly crushed, tipped and superimposed, the difficulties were so great during a serious fire that extraordinary methods to combat it were necessary. The best known practice in sealing with concrete and projected cement did not suffice. The fire finally was extinguished by the injection of more than 500 containers of carbon dioxide into the ineffectively sealed area. In the process a good deal of experience was gained that might be of value in fighting mine fires anywhere.

The unusual expedient of fighting the fire with "soda fountain gas" was resorted to only after the men of the coal company had done the best they could with the other means at their command. Then a copy of *Coal Age* was produced that told how gas had extinguished an underground fire. The men at Pine Hill followed the same plan and won. The fire was reported Feb. 28, 1924, in the Red Ash bed on the fourth or 200-ft. level. In this locality the bed is geologically the middle split of the Mammoth bed. It is highly irregular in both thickness and character, varying from 1 to 6 ft. in thickness and from a hard firm coal to one of a decidedly shelly nature. In most places it has a

firm, granular sandstone top with a fairly good sandstone bottom.

In the vicinity of where the fire was reported about 40 ft. of sandstone parting separates the Red Ash from the bottom split of the Mammoth bed (at this operation known as the Black Heath). Similarly about

200 ft. of sandstone separates it from the overlying bed, known as the Buck Mountain. Ordinarily, the top split of the Buck Mountain should-overlie the Red Ash, but this top split has been here displaced by a great overthrust fault. The Red Ash bed was about 6 ft. thick in the area affected by the fire and pitched at about a 40-deg. inclination.

The shaft workings of the Pine Hill Colliery were laid out for mining by a sort of panel system. Cross-tunnels on each level were driven across the measures at approximately 1,500-ft. intervals, all beds pitching at approximately 40 deg.

At the time of its discovery the only evidence of the fire was smoke and fumes coming from the section east of No. 1 tunnel

on the fourth level and entering No. 1 overhead air tunnel which is a direct return to the fan. The fire therefore evidently was east of this tunnel, back in old workings and inaccessible, as this section had been robbed about 1,500 ft. east to No. 2 tunnel. The third, or 400-ft., level had been robbed above, as had the second, or 600-ft., level, up to a chain pillar under the first or 800-ft. level. This chain pillar had been left to support a watercourse to surface drainage. It had run through to the lower level at a number of places close together at the western end, and these had been filled with rock and gob material. At one place also it had run through near the open eastern end.

### A LITTLE GAS DOES A BIG JOB

PUTTING out a mine fire with CO<sub>2</sub> is not a herculean task of filling a mine full of this gas—nor even filling an entire sealed-off fire area. Air is already 79 per cent inert (nitrogen). The remaining 21 per cent oxygen need be reduced only to such a point as will produce an atmosphere incapable of supporting combustion. Thus, if a sealed area is almost airtight, a volume of carbonic acid gas equal to only a small fraction of its cubic contents need be introduced. But even if the area is not entirely airtight, the heavy CO<sub>2</sub> will smother a fire if it can be introduced close to the burning zone, just as common fire extinguishers put out flames in a corner without filling the entire room with gas. This is an important conclusion that Mr. Strange offers after his experience with the mine fire he describes in this article.

The headpiece accompanying this article shows the carbon dioxide manifold, made up of ordinary pipe and fittings, through which five cylinders of the liquid gas could be discharged simultaneously. The valves on these cylinders were prevented from freezing by a stream of hot water kept playing on each from the carbide cans on the plank above them. Note, however, the frosty condition of the pipes. The hot water was condensed from steam run into the mine through pipes ordinarily used to bring in drinking water for mules.

This watercourse, which originally was a haulage-way, had been sporadically neglected and maintained for over 70 years, and since the fallen material had been walled up along the high rib instead of being removed, this passage was very narrow with low head-room in places. The run-through opening at the eastern end of the watercourse was the only apparent return from the old workings and the only outlet for gases and blackdamp from the fire section except for the No. 1 air tunnel on the fourth level. Air in the return from the old workings in the Red Ash bed at the eastern opening of the watercourse for at least ten years, to my own personal knowledge, had been low in oxygen. It contained, however, in addition to a trace of methane, a fairly high content of carbon dioxide with a resulting preponderance of nitrogen. It thus formed a typical blackdamp containing considerable moisture and having a temperature of approximately 80 deg. F. Its composition was characteristic of returns from old workings throughout the southern anthracite field.

#### IMMEDIATE INSPECTION ATTEMPTED

As soon as this fire was reported, everyone inside the mine was notified to proceed to the shaft bottom. Only a small force was in the mine at the time, as the day shift had gone home and only timbermen, repairmen, pump men and a few gangway miners and tunnel men were at work. All of these men were held at the shaft bottom and told to wait for further instructions. An inspection party was made up of company officials and upon investigation it was found impossible to proceed further east than the No. 1 air tunnel. This was not only because of the smoke and fumes there present but also because the territory had been robbed to the tunnel and the section was closed. The roof had broken and fallen and the material had run down the pitch and blocked the section, so as to render it impassable.

No explanation as to the origin of the fire was forthcoming. It was located in old workings that had been abandoned for almost five years. No flame could be seen in the short distance through which one could peer through the broken material. At this point the gases coming off from the fire were only at about 100 deg. F., so that it was believed that the fire was small and located possibly 200 or 300 ft. to the eastward. It was found to be practically impossible to attack the fire by direct means and accordingly it was decided to seal

off the territory where it obviously must be located.

No evidence of smoke or fumes was found at No. 2 haulage or air tunnel, about 1,500 ft. to the eastward. Incidentally, in making his rounds the fireboss had noted for approximately a week previous an unusual, low-hanging fog along the gangway in the bed overlying the Red Ash, which was open from the No. 2 tunnel about 200 ft. west.

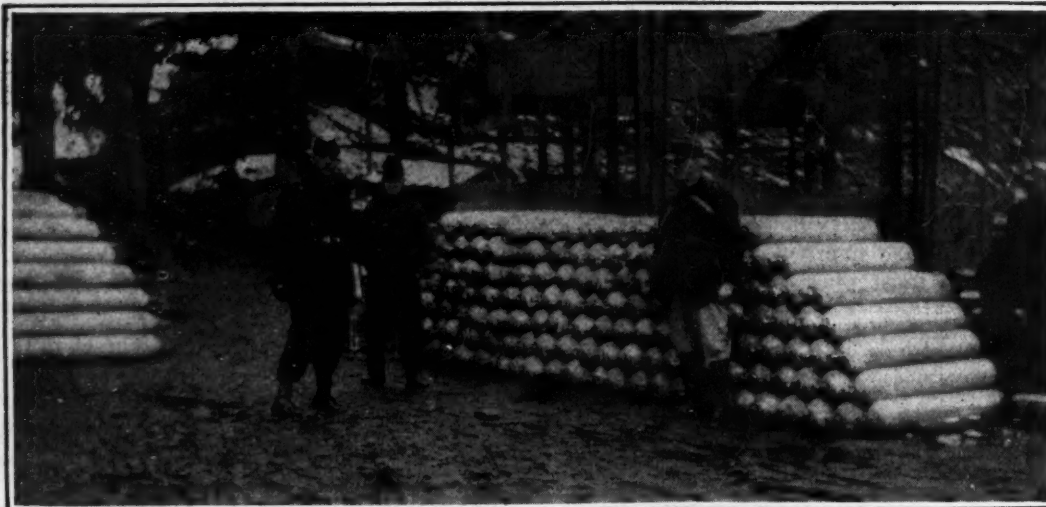
#### LITTLE EVIDENCE FOUND

No evidence of fire was found at the eastern end of the watercourse opening in the Red Ash bed, which was the only other accessible place in this measure, except on the fifth level, where breasts had been driven through to about the middle of the territory between tunnels Nos. 1 and 2 on the fourth level. The faces of these breasts ended in the old robbed and impassable fourth level gangway. Here a slightly greater amount of black damp than was usual was the only evidence of fire that could be detected.

Because of the worked and robbed condition of the Red Ash bed, the only practical method of sealing off the fire area at the western end was to close the tunnels leading to the bed at the different levels, where this was possible. Such sealing would be assisted by a fault that cut the bed off at the western end. Concrete walls about 18 in. thick and reinforced with old scrap iron, as well as being hitched into the top, bottom and ribs, were hastily constructed. For convenience in reference, these were numbered. The chief seals thus built between the Black Heath and the Red Ash measures were at the following places:—Fourth level, No. 1 haulage tunnel, seal No. 12; No. 1 air tunnel, seal No. 11; No. 2 haulage tunnel, seal No. 8; No. 2 air tunnel, seal No. 8-A. On the fifth, or 80-ft. level, No. 1 air tunnel, seal No. 9; No. 1 haulage tunnel, seal No. 10. On the third level, No. 1 tunnel, seal No. 3.

These seals were built with a hinged iron manhole door. A 6-in. pipe with a valve was placed near the bottom to relieve any accumulations of water, while a 2-in. pipe with a valve was placed near the top for air sampling. These seals as well as the top and ribs for a foot or more adjacent to them were heavily coated with a roof repair compound to insure their being air-tight.

At this time the fire was very quiet, emitting no puffs or explosions, and no difficulty was experienced in building any of the seals except that at No. 1 air tunnel on the fourth level. Here smoke and fumes were



#### Ready for Use

This shows the supply of liquid carbon dioxide at the top of the shaft. Over a carload of these cylinders were emptied in extinguishing the fire. This gas so diluted an atmosphere already deficient in oxygen that the fire was drowned quite as effectively as if water had been directly applied to it.

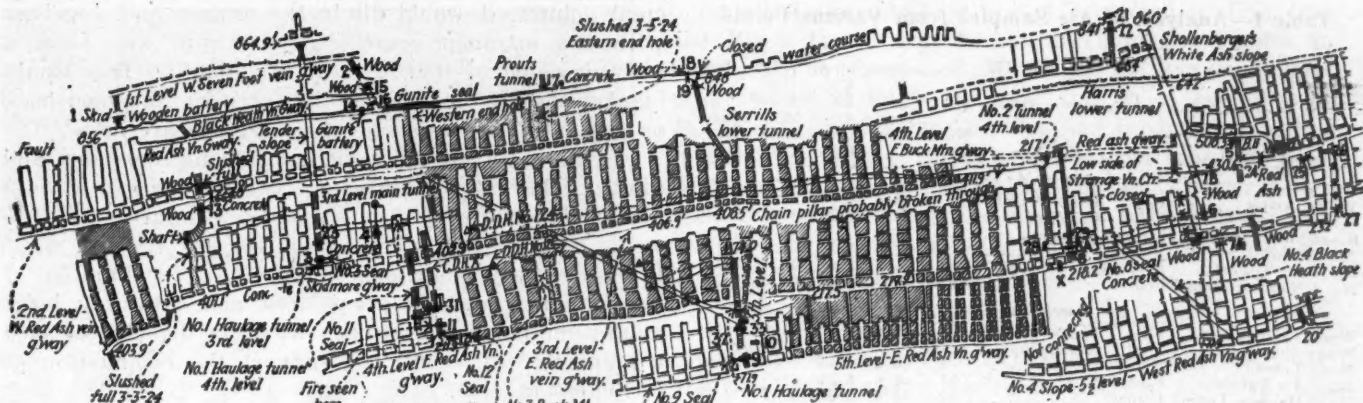


Fig. 1—Plan of Pine Hill Coal Co. Mine Workings Showing Probable Location of the Fire  
Fire apparently originated in a region so badly caved as to be inaccessible for direct attack and the indirect method of smothering consequently had to be resorted to. Inasmuch as several heavily pitching beds are here super-imposed one above the other (see Fig. 2) this mine plan is not as easily comprehended as is one showing a single bed lying nearly level.

present in volume. At this point, also, the work of concreting was carried on under difficult conditions, as the necessary materials had to be carried up an old chute for approximately 35 ft. and then along an old monkey heading for another 25 or 30 ft. to the air tunnel. This work was done by a bucket brigade and inasmuch as the air tunnel was a return for this heading, these men were in fresh air, as the fans were left in operation on the normal exhaust system. This was not the case, however, with the man who actually poured the concrete into the seal form, as he was directly in the path of the hot gases. This man was, therefore, equipped with an oxygen helmet. The men distributed along the heading were similarly equipped so as to be ready for any emergency, but did not use their helmets. Later on they, as well as the one working at the seal, were supplied with gas masks. This equipment proved entirely satisfactory and the work proceeded more rapidly after its adoption as the masks were not so heavy and bulky as the helmet equipment.

Five men equipped with oxygen helmets were held in reserve at No. 1 haulage tunnel on the fourth level ready for any emergency. It took from 10 p.m. of the evening upon which the fire was discovered until midnight of Feb. 29 to complete concreting the seals. In the meantime, wooden batteries and concrete seals were being constructed at other locations (as shown on the accompanying map) as an extra precaution.

Jesse Hensen, foreman, with the Pennsylvania Bureau of Mines, arrived early on the morning of Feb. 29 and gave extremely valuable advice and assistance in the handling of the situation.

#### BOILER ASHES SLUSHED IN

It was found impracticable to build a secure seal across the No. 1 tunnel on the second level, as the inside end of this passage leading to the Black Heath bed under the Red Ash measure was inaccessible. Accordingly a 6-in. wrought iron pipe line was run down the shaft to this level and boiler ashes from an old bank near the top of the shaft were slushed in until it was completely filled. In order to be sure that this passage would be entirely blocked as well as to allow for settling, an elbow was placed at the discharge end of the pipe and an extension run up into a roof fall. By this means, the discharge of the pipe was about 4 ft. above the roof of the tunnel. In a similar manner, breast No. 8 from the fourth level in the Red Ash was

slushed full from the shaft to the third level gangway.

At the watercourse on the 800-ft. level, a 6-in. pipe was laid into the outside of the eastern hole in the same pillar and slush run in to seal this opening. At the western end, where this pillar had run through, and the space had filled up with loose rock, it was not practicable to seal the low side with slush, and simultaneously keep the watercourse open (as was desired). This opening was, therefore, sealed in the following manner:— West of the hole, where the top and ribs were fairly solid, these surfaces were coated with gunite. Small sets of timber were then placed inside of the old gangway sets which were somewhat decayed. The small sets were then boarded on the inside with planks, to which expanded metal was nailed and the covered passageway thus constructed was then coated on the inside with gunite. This passageway was carried past the broken ground and again sealed to the top, ribs and bottom. The bottom was here covered with about 6 in. of "yellow boy" or sludge that was present in the watercourse.

Because this work had to be done from the western end, in which direction the return air moved, the cement projecting machine operator was equipped with an oxygen helmet. At this point the danger was ever present that carbon monoxide might be encountered at any moment. As soon as all seals in the Red Ash bed were completed work was resumed in the balance of the colliery, only four working days having been lost.

#### ANALYZED AIR SAMPLES

On March 4, samples of the air were taken at the various seals and analyzed. The results of these analyses are shown in Table I. On March 20, it was noted that seal No. 11, in the No. 1 overhead tunnel, was becoming extremely hot, some portions of the wood form left on the concrete being charred. Upon looking through the air-sampling pipe the fire could be seen, blazing furiously and emitting a decided roar. This seal was accordingly reinforced with an extra 2 ft. thickness of concrete as an added precaution.

Obviously the fire was gaining headway. It was believed that either it had not had sufficient time to consume the oxygen, that had been sealed in with it, or that the seals were not tight at the eastern end of the fire territory. Analysis of air samples showed that the fire was getting oxygen, evidently from above the No. 2 tunnel on the fourth level, as well as from the

Table I—Analysis of Air Samples from Various Points

Passage Sealed	Level	Seal Location	Number	Composition of Air in Per Cent			
				Oxygen O <sub>2</sub>	Carbon Dioxide CO <sub>2</sub>	Carbon Monoxide CO	Marsh Gas CH <sub>4</sub>
March 4, 1924							
Water Course.....	First	Western Hole	....	15.4	4.06	0.06	0.25
Water Course.....	First	Eastern Hole	....	16.7	2.82	0.017	0.63
Second level, inaccessible, due to slushing.							
No. 1 Tunnel.....	Third	.....	3	12.8	3.26	none	0.12
No. 1 Air Tunnel.....	Fourth	.....	11	6.2	8.63	0.24	1.74
No. 1 Haulage Tunnel	Fourth	.....	12	12.3	3.87	0.33	1.25
March 10, 1924							
Water Course.....	First	Western hole	..	13.6	4.74	0.0013	0.25
Water Course.....	First	Eastern hole	Inaccessible due to slushing				
No. 1 Tunnel.....	Third	.....	3	0.6	4.67	none	0.67
No. 1 Air Tunnel.....	Fourth	.....	11	6.6	8.56	0.63	2.86
No. 1 Haulage Tunnel	Fourth	.....	12	10.8	5.26	0.47	2.76
No. 2 Haulage Tunnel	Fourth	.....	8	13.9	1.57	none	1.02
No. 1 Haulage Tunnel	Fifth	.....	9	19	0.34	none	0.46
March 20, 1924							
Water Course.....	First	Western hole	..	15.7	2.66	none	0.23
No. 1 Tunnel.....	Third	.....	3	Trace	4.91	none	0.96
No. 1 Air Tunnel.....	Fourth	.....	11	5.3	10.28	1.53	0.72
No. 1 Haulage Tunnel	Fourth	.....	12	8.4	7.1	0.52	2.57
No. 2 Haulage Tunnel	Fourth	.....	8	11.9	0.6	none	0.94
No. 1 Haulage Tunnel	Fifth	.....	9	20.2	0.2	none	0.42

fifth level. A large quantity of fresh air had been sealed in in the fifth level, as the workings at this point were live. Naturally this would have to be consumed by the fire before it would smother itself but it was known that the interval between the eastern end of the fourth level and the surface was not tightly closed. All levels above the fourth had been robbed and were inaccessible to sealing.

It would, of course, have been possible to put down boreholes in a direct line with the pitch from the water-course to the fourth level and slush in a silt barrier. The surface conditions, here encountered, however, would mean starting the drill through 40 to 60 ft. of a mine rock and slate refuse bank. This method also would have entailed running the slush into a robbed territory with no possibility of controlling its course, which would have resulted in an utter uncertainty of making a tight seal. Furthermore, it would have taken weeks or possibly months to put down the holes and complete the slushing. In the meantime, the fire would be getting beyond control. It was necessary, therefore, that something be done and done quickly.

#### BLACK HEATH PASSAGES SEALED OFF

It was thought by Mr. Brennan, state mine inspector, that possibly the parting between the Red Ash and the underlying Black Heath measure had broken through and that the fire was getting air through these crevices. Accordingly passages in the Black Heath bed were sealed off in the same manner as those in the Red Ash. In order to do this, it was necessary to seal off the water course entirely. Even in the case of the Black Heath bed, however, it was impracticable to make a tight seal at the eastern end of the territory.

About this time I recalled having once read an article describing how liquid carbon dioxide had been used in combating a fire in the Bitner mine of the H. C. Frick Coke Co. The copy of the magazine containing this article was found and studied and it was accordingly decided to try the use of this gas. The following conditions were assumed to exist in this particular case:—The western end of the fire territory, according to available maps, inspections, and the result of air tests, as well as general observation, was considered to be practically air-tight, but the eastern end could not be sealed effectively. If then carbonic acid gas could be discharged directly into the fire in suffi-

cient volume, it would dilute the oxygen and, together with the nitrogen present in the mine air, form a body or cloud of inert gas or blackdamp. This would blanket the western end of the territory and hold back or prevent fresh air from reaching the fire area.

Furthermore, by introducing carbonic acid gas and diluting the oxygen content of the mine air to 8 or 9 per cent, conditions that would extinguish the fire would be hastened, whereas waiting for the fire itself to create such conditions would entail the liability of its spreading over a great area and attaining large magnitude before the oxygen would be depleted to such a point that it would not support the combustion of incandescent coal.

I was also much impressed by a statement made by G. S. Newth in his textbook on inorganic chemistry, to the effect that "the power of carbon dioxide to extinguish flame is so great that a taper will not burn in air in which this gas is present to the extent of 2½ per cent, and in which the oxygen is reduced to 18½ per cent."

#### OBTAINS SUPPLY OF CARBON DIOXIDE

From a local bottling works I ascertained that it obtained its supply of carbon dioxide from a plant in Newark, N. J. I accordingly got in touch with the manager of this concern, who immediately sent out four 5-ton trucks loaded with 320 cylinders of gas, each containing about 50 lb. or 450 cu.ft. at average atmospheric temperature and pressure. The four truck loads arrived the next day, March 21, and on Sunday, March 23, a carload containing 250 cylinders arrived.

In the meantime, the seals leading to the Black Heath bed were being completed. Introduction of the inert gas was not begun until Wednesday afternoon, March 26, when the last seal had been completed and all were carefully inspected. A water gage, such as is used on mine fans and a recording pressure instrument, were placed on the No. 3 seal at the third level in the Red Ash bed. (The air sample and water release pipe in the Red Ash seals had been lengthened and run through the Black Heath seals). The gage showed a varying pressure behind the seal of from 0.1 to 0.25 in., of water, with rapid fluctuations at intervals.

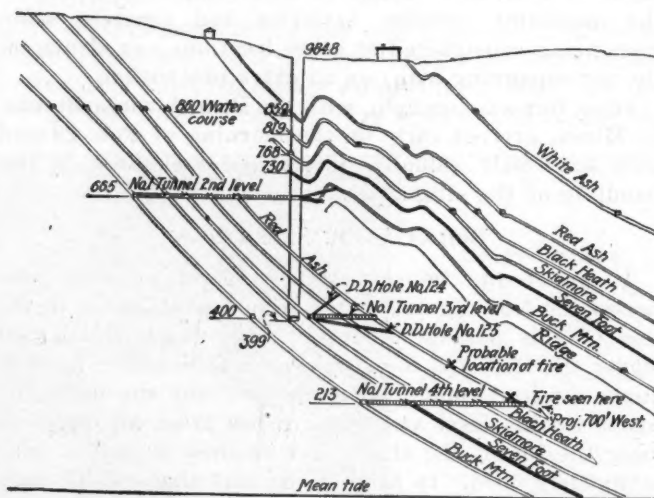


Fig. 2—Cross-Section of the Measures Worked

As may be here seen, the measures have been dislocated by a fault. The coal beds appearing on the right are continuations of those on the left of this figure. They have, however, been lifted and pushed sidewise, relatively, by the thrust of the faulting movement. More or less caving between beds apparently allowed the fire in the Red Ash to draw air from the Black Heath. Seals, accordingly, had to be constructed in both these measures.



Sending Cylinders Into the Mine

Sacks of cement are also shown ready to be lowered. This fire was successfully fought with two materials—cement, which, in the form of concrete and gunite closed the fire area practically air tight, and carbon dioxide which then extinguished the fire.

Manifolds, to each of which 5 cylinders of gas could be attached, were employed. These were fitted with valves, pressure gages, etc. One was attached to the No. 11 seal air sample pipe, and the other to the corresponding pipe in seal No. 12. Instead of using blow torches to prevent the discharge valves from freezing, steam was run into the water pipes leading to the barn on the fourth level at a point opposite No. 1 tunnel and which normally conveyed drinking water to the mules. This steam left these pipes as hot water near the place where the cylinders were set up in the Buck Mountain gangway, about 200 ft. from the seals. Above each cylinder was placed an old 10-lb. carbide can. This was kept full of hot water, which was directed in a small stream from a nail hole punched in the bottom of the can and played onto the valve of the cylinder. This prevented the valve from freezing.

## EFFECTS OF GAS SOON NOTICED

Carbide dioxide gas was turned into the seals at 2:40 p.m. of Wednesday, March 26. At 3:20 the recording water gage at seal No. 3 on the third level showed an abrupt drop from 0.1 in. to below zero, thus indicating a vacuum. This negative pressure could not be registered, however, as the water gage was constructed to record positive pressures only. It was evident, however, that the inert gas introduced behind the seals was cooling off the fire quite rapidly. By 7 p.m., Wednesday, 194 cylinders had been emptied into the fire area and by 6 a.m. Thursday morning, this number had been increased to 436. By 4 p.m. of Thursday, 558 cylinders had been discharged and only 12 full ones remained. These were poured in, one at a time, taking eight hours for the discharge of each (some of the cylinders had been accidentally emptied through leaks in the safety cap and from other causes).

Table II—Analysis of Air Samples Taken April 1, 1924

Passage Sealed	Level	Location	Number	Composition of Air in Per Cent			
				Oxygen	Carbon dioxide	Carbon monoxide	Marsh Gas
Water Course.....	First	Western hole	..	4.6	5.61	none	0.82
No. 1 Tunnel.....	Third	.....	3	19.8	0.03	none	none
No. 1 Air Tunnel.....	Fourth	.....	11	10.8	4.94	0.14	0.67
No. 1 Haulage Tunnel	Fourth	.....	12	8.4	12.21	0.13	1.76
No. 2 Haulage Tunnel	Fourth	.....	8	16.6	1.65	none	0.69
No. 1 Haulage Tunnel	Fifth	.....	9	19.4	0.17	none	none

An air-tight vestibule was constructed leading into the Black Heath seal at No. 1 (haulage) tunnel on the fourth level, and on March 29, an oxygen helmet crew passed through this seal and on to seal No. 11 in the air tunnel where the fire had been seen burning intensely on March 20. The air sample pipe was here disconnected and upon looking through it, everything appeared dark behind the seal. A thermometer was introduced through this pipe and the temperature inside the seal was registered as 182 deg. F.

## AIR SAMPLES AGAIN COLLECTED

On April 1, air samples were collected as before, their analyses being shown in Table II. On April 16, the temperature was 105 deg. F. at the No. 11 seal in the No. 1 air tunnel on the fourth level. Analyses of air samples taken on April 16 are set forth in Table III.

During the last week of April a long-distance, recording thermometer of the mercury tube type was placed in seal No. 11, and the cable carried out in No. 1 tunnel through the Black Heath seal. This instrument was so placed that temperature readings could be taken with greater convenience and safety than was before possible. The conditions surrounding No. 11 seal had become extremely dangerous, as the timbers had started to break and the ribs and top were spalling off because of the intense heat to which they had been subjected. The use of oxygen helmets, neces-

Table III—Analysis of Air Samples Taken April 16, 1924

Passage Sealed	Level	Location	Number	Composition of Air in Per Cent			
				Oxygen	Carbon dioxide	Carbon monoxide	Marsh Gas
Water Course.....	First	Western hole	..	1.9	4.64	none	0.33
No. 1 Tunnel.....	Third	.....	3	3.1	4.92	none	0.91
No. 1 Air Tunnel.....	Fourth	.....	11	7.2	6.18	0.013	0.78
No. 1 Haulage Tunnel	Fourth	.....	12	7.4	5.59	none	2.14
No. 2 Haulage Tunnel	Fourth	.....	8	17.6	1.44	none	0.46
No. 1 Haulage Tunnel	Fifth	.....	9	17.4	0.57	none	0.13

Table IV—Analysis of Air Samples Taken May 10, 1924

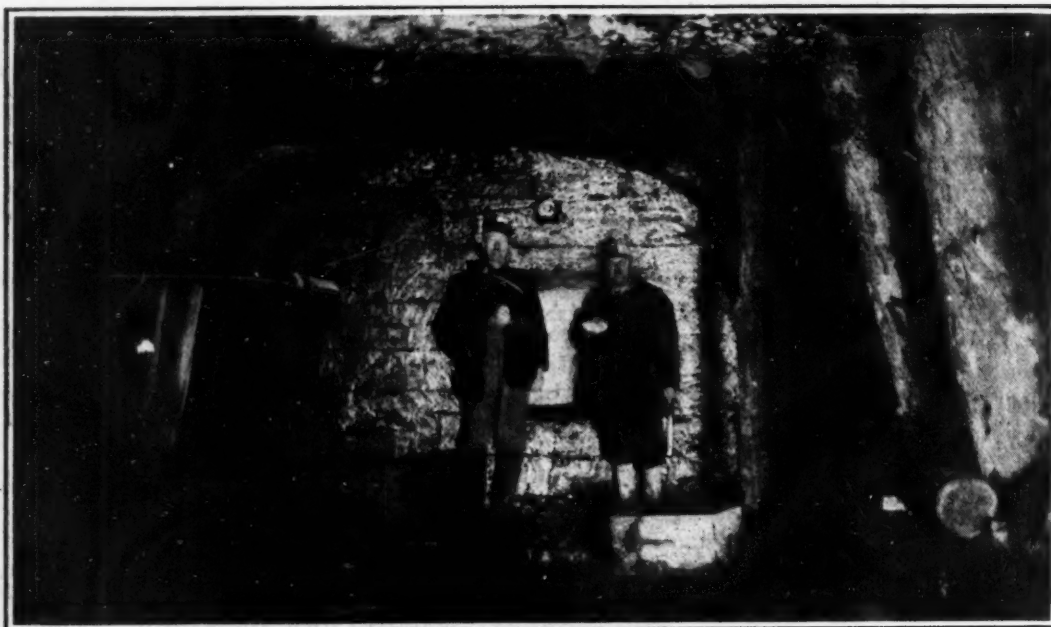
Passage Sealed	Level	Location	Number	Composition of Air in Per Cent			
				Oxygen	Carbon dioxide	Carbon monoxide	Marsh Gas
Water Course.....	First	Western hole	..	0.4	1.55	none	0.95
No. 1 Tunnel.....	Third	.....	3	14.6	2.44	none	0.2
No. 1 Air Tunnel.....	Fourth	.....	11	7.5	4.77	none	2.21
No. 1 Haulage Tunnel	Fourth	.....	12	7.7	4.83	none	1.83
No. 2 Haulage Tunnel	Fourth	.....	8	17.6	1.44	none	0.46
No. 1 Haulage Tunnel	Fifth	Water behind seal prevented sampling air					

sary when taking the temperatures at this point, was inconvenient as well as dangerous.

During March air samples were taken at the various seals approximately every day. In April they were taken every three or four days, while in May, about once a week. Only a few representative analyses are here given, as it is not desired to burden the reader with unnecessary details. The nitrogen content of the air also has been omitted.

## CONSIDERED FIRE EXTINGUISHED

The air sample of April 18, taken in seal No. 11, where the fire was first discovered, was the last one to be secured at any point in the mine showing the presence of carbon monoxide. The samples taken on May 10 are set forth in Table IV. As the result of these analyses and those of other samples taken later, from time to time, showing a gradually cooling temperature, the fire was considered to be extinguished.



#### Quenching the Fire

This shows one of the seals through which carbon dioxide is being poured. When this gas leaves its containing cylinder it is at a temperature of approximately 40 deg. below zero, Fahrenheit. It thus has a decided cooling influence upon the atmosphere into which it is poured. In fighting this fire this refrigerating action was manifested by a pronounced drop in pressure within the seals a few minutes after introduction of the gas was begun.

During May, it was decided to drive two Diamond drill holes from the Skidmore bed gangway on the third level (which was accessible) to such points and at such angles as to bring one hole into the Red Ash bed within the fire zone under the old chain pillar below the third level a little east of No. 1 air tunnel on the fourth level. The other should have holed through into the Red Ash in about the same plane as the first but above the old chain pillar. Such holes would furnish accurate indications of conditions existing in the fire area both as to the composition of the air and the existing temperatures in these various localities.

The first hole drilled, No. 124, was above the chain pillar and after much difficulty in getting through the robbed Black Heath measure, it entered the Red Ash on May 26. The analysis of air taken from this hole showed oxygen 9.7 per cent, carbon dioxide 5.14; carbon monoxide none; marsh gas ( $\text{CH}_4$ ) 1.83 per cent. The temperature was 120 deg. F.

Hole No. 125 intended to reach the Red Ash bed under the same pillar, met with many mishaps and finally the diamond bit was lost when it was estimated that the hole had just reached the bottom slate of the Red Ash measure. Analysis of the air taken from this hole showed oxygen 8 per cent; carbon dioxide 5.23; carbon monoxide none; marsh gas 1.49 per cent. The temperature was 88 deg. F.

#### TESTED AIR AND NOTED TEMPERATURES

As an extra precaution, a diamond drill hole, No. 126, was put down from the 7-ft. bed in the fourth level through the robbed Skidmore and Black Heath measures reaching the Red Ash at the face of breast No. 10, about 500 ft. each of where the fire had been seen at No. 1 tunnel. The air sample taken from this hole on June 20 showed oxygen 1.3 per cent; carbon dioxide 7.76; carbon monoxide none; marsh gas 2.38 per cent. The temperature at this point was 104 deg. F. Electric thermocouple, long-distance, recording thermometers were placed in these drill holes and the temperatures noted daily.

By October the temperature in seal No. 11 had fallen to 78 deg. F., and that in the drill hole above the chain pillar in the fire zone to 108 deg. The temperature in the last drill hole mentioned at breast No. 10

of the Red Ash measure was down to 84 deg. F. The seals isolating the fire area have never yet been opened although all danger of reignition has to all appearances long since passed away.

During June, 5 gal. of amyl acetate (banana oil) had been poured into seal No. 11. About one week later the odor of this liquid became perceptible at No. 1 tunnel seal in the fifth level. This was the only place where the odor was ever detected, indicating an extremely sluggish movement of air through the fire area, which was, of course, the condition to be desired as reignition is thus rendered improbable.

Regarding the use of carbon dioxide for extinguishing mine fires, I have found the opinion prevalent that the sealed fire territory must be completely filled with this gas before the fire will be extinguished. In other words, most people think that each 100 cu.ft. of space must be filled with 100 cu.ft. of carbon dioxide before the fire will die. They are wrong.

#### GENERAL ASSUMPTION DISPROVED

To all practical intents and purposes pure air consists of 21 per cent oxygen and 79 per cent of nitrogen by volume. Nitrogen is exactly as inert a gas as is carbon dioxide, so that roughly four-fifths of the space sealed in with any fire is already filled with an inert gas and only one-fifth contains oxygen. This must, of course, be diluted to the point where it will not support combustion.

Furthermore, if carbon dioxide can be so introduced that it will fall directly onto or in close proximity to a fire, it is evident that a smaller quantity of the gas will be necessary. As an example, a popular and efficient portable hand fire extinguisher contains a liquid that frees carbon dioxide when it comes in contact with heat. This gas then smothers the fire by forming an inert gaseous blanket above it. A small extinguisher will thus put out quite a large blaze in the open. It is not necessary to fill an entire room with carbon dioxide from the extinguisher before any fire in it will be quenched, provided the extinguisher can be played directly upon the blaze.

This same principle applies in extinguishing mine fires with gas. The volume of carbon dioxide needed, is, after all, small and the more directly it is applied to the fire, the smaller the requirement.

# History Records How Miners' Union Got Strangle Hold on Central Competitive Field

By Sydney A. Hale  
Special Contributor, *Coal Age*,  
New York City

**T**HE CENTRAL COMPETITIVE FIELD offers the most logical starting point for a survey of the labor situation in the bituminous industry. For over a quarter of a century the coal districts of Illinois, Indiana, Ohio and western Pennsylvania have been the citadel of union strength. There more than anywhere else, unless it be in the Southwest or the relatively unimportant Michigan coal field, organized labor has been strongly entrenched. That attempts are now being made in parts of the Central Competitive Field to seek escape, not from collective bargaining, but from the inflexible domination of the international officers of the United Mine Workers of America is in itself convincing evidence that there is solid ground for the charge that the organization headed by John L. Lewis is facing the most critical period in its history.

The commanding position of the Central Competitive Field in union affairs is not the outcome of whim or chance, but the result of developments which stretch back to the beginnings of a national labor consciousness in the soft coal industry. The movement was cradled in Illinois back in the Civil War days. Mark Hanna was its friend fifty years ago. It was Col. W. P. Rend, also a Central Competitive Field operator, who encouraged the National Federation of Miners and Mine Laborers—one of the predecessors in interest of the United Mine Workers—to issue call after call for a joint conference of operators and miners. To his persistence and that of other operators whom he won over to his views was largely due the first joint interstate agreement, signed in Columbus, Ohio, in February, 1886.

That milestone in collective bargaining which brought producers of Illinois, Indiana, Ohio and Pennsylvania into group contractual relations with their workers in response to the call "to frame a scale of wages, agree upon uniform working conditions, adjust market and mining prices in such a way as to avoid strikes and lockouts and to give each party an increased profit from the sale of coal" did not mark the end of the dissensions which had wrecked the earlier labor organizations in the bituminous field. Neither did it usher in any era of unbroken solidarity in the ranks of the producers in those four states. It was not until January, 1898, that the now famous joint interstate conference held at Chicago drew the operators and miners of Illinois, Indiana, Ohio and western Pennsylvania into an association that was not seriously disturbed for the better part of a generation.

The Central Competitive Field, therefore, has an organized labor background of over 60 years' duration. During nearly half of that time the organization has been so close and so powerful that it has become the

fashion to speak of the mines in this region as 100 per cent union. Strictly speaking, this is not wholly correct. Scattered throughout the four states are the small country banks which recognize no union in their labor relations. As a matter of fact, in some cases the intermittent operation of these mines is a co-operative or a family affair. The number of workers employed at any one mine of this class is small and their activities escape the scrutiny of both the state and the union.

Illinois mining laws, for example, apply only to operations where ten or more men are employed. By far the greater number of these mines are saved from compliance by this provision. And that number is not small. The 1923 Illinois state coal report listed 194

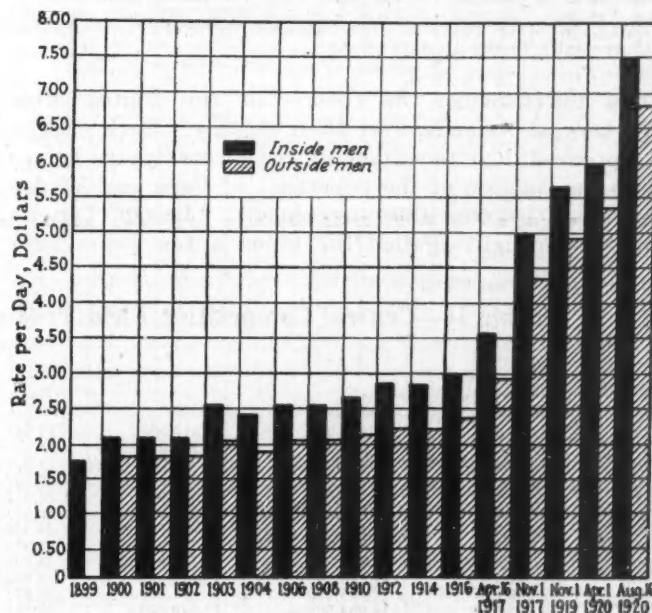


Fig. 3—Increases in Day Wage Rates Under Union Domination

This chart, based upon figures furnished by the Illinois Coal Operators' Association, shows the upward movement in base rates to inside and outside day labor since the organization, for collective bargaining, of the Central Competitive Field.

local mines in Fulton County alone—and only seven of this number employed ten or more men. The production, however, was inconsiderable, aggregating 259,327 tons, with the majority of the mines producing less than 1,000 tons in the year. It is not surprising, therefore, that the union exhibits a fine disdain for the labor status of these pits and passes by their non-unionism as a thing of no concern.

The quarter of a century of close relationship following the signing of the joint interstate agreement of 1898 has not, as is well known, been free from strikes. There have been several suspensions of varying length, intensity and territorial sweep. But even in the most prolonged struggles, as in Ohio in 1914-15, there was no real attempt upon the part of the oper-

Second of a series of articles describing the changes in the labor status of the different bituminous coal producing districts of the United States in recent years. The first appeared in *Coal Age*, Sept. 24, 1925. Another article will be in an early issue.

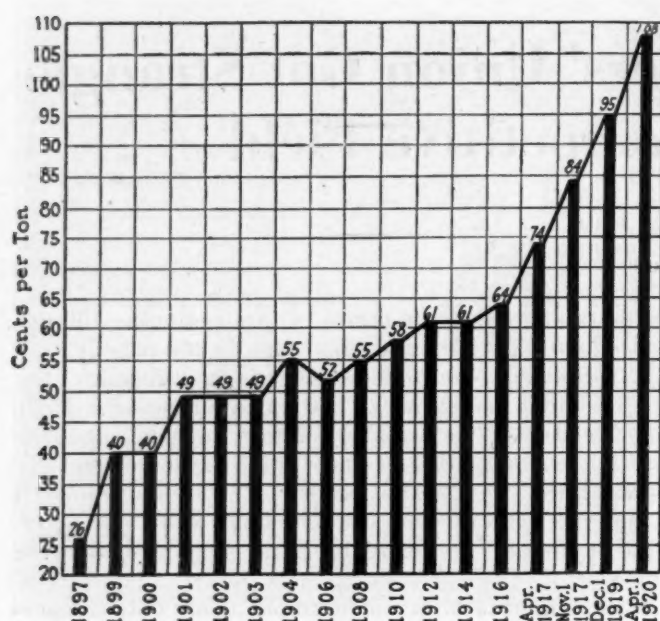


Fig. 4—The Steady March of Tonnage Rates in Union Territory

The rates shown are those paid for pick-mining in the Danville, Illinois, district. The Danville rate, which is the same as that paid in Indiana, is the base rate for the greater part of the Central Competitive Field. Rates, both pick and machine mining, in other parts of the four-state territory are adjusted differentially to the Danville base.

ators to challenge the control of the United Mine Workers of America over their destiny. Such efforts, it appeared, had faded out of the picture years before with the collapse of the resistance of Pana and Virden operators to the 1898 agreement. Joseph Leiter's spectacular fight against the union a few years later

was the leadership of a forlorn hope. William J. Lester's experiment which culminated in the Herrin massacre was the venture of a man not identified with any other operator or operating group in Illinois.

It is only in the present year that growing resentment over the unqualified refusal of the international officers to recognize post-war economic readjustments and to meet the operators to discuss downward revisions in wage rates in the same spirit in which the producers met with them to approve upward revisions during the war years has flared into open rebellion. Up to this year it has been a question of making the best bargain possible with the union. There was no suggestion that, if a satisfactory bargain could not be made with the union, the operators would dispense with the union. Even the abortive attacks made by the producers of Ohio and western Pennsylvania in 1922 were attacks upon the Central Competitive Field system of making contracts—not attacks upon the principle of making contracts between the operators and the United Mine Workers of America. If there have been schisms in the quarter of a century, the schisms have been in the ranks of the employers, and the union leaders have been astute enough to use internal market jealousies to further their own cause.

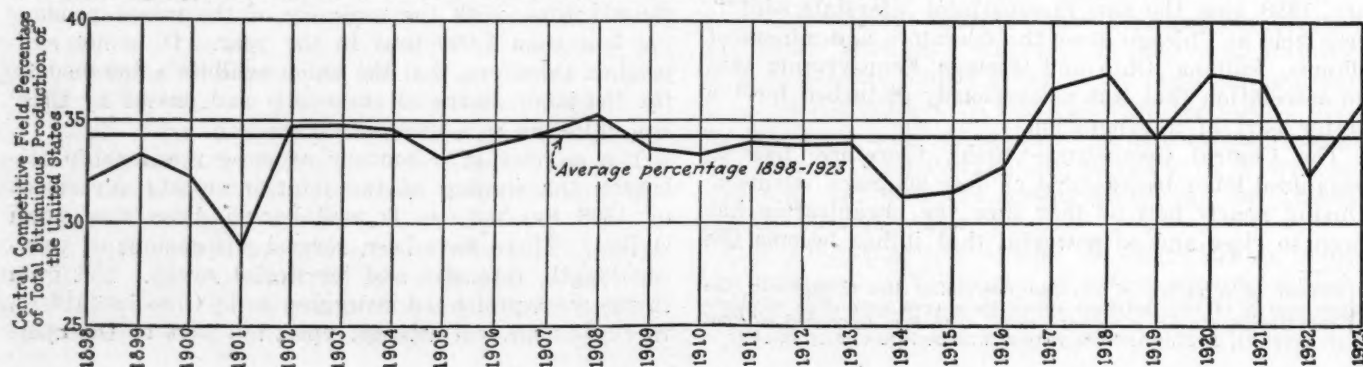
During the long period in which the supremacy of the United Mine Workers of America was fully acknowledged by the operators, the labor factor in production cost has been subjected to a steady upward pressure—continuous except for the interval covered by the two-year contract ended March 31, 1906. That was the only time since the United Mine Workers became the dominant force in the Central Competitive Field that there was any reduction in wage rates conceded by the

Table II—Central Competitive Field Production in Relation to Total Bituminous Output

(In net tons)

Year	Illinois	Indiana	Ohio	Western Pennsylvania*	Total in Central Field	Total Bituminous Tonnage—United States	Central Competitive Field—Per Cent of Total Output—Year	Five-Year Average
1898	18,599,000	4,921,000	14,517,000	15,349,000	53,386,000	166,594,000	32.0	
1899	24,439,000	6,007,000	16,500,000	17,157,000	64,103,000	193,323,000	33.2	32.5
1900	25,768,000	6,484,000	18,988,000	17,421,000	68,661,000	212,316,000	32.3	
1901	27,332,000	6,918,000	20,944,000	9,967,000	65,161,000	225,828,000	28.9	
1902	32,939,000	9,446,000	23,520,000	24,267,000	90,172,000	260,217,000	34.7	
1903	36,957,000	10,795,000	24,838,000	25,593,000	98,183,000	282,749,000	34.7	33.2
1904	36,475,000	10,842,000	24,400,000	24,556,000	96,273,000	278,660,000	34.5	
1905	38,434,000	11,895,000	25,553,000	28,378,000	104,260,000	315,063,000	33.1	
1906	41,480,000	12,093,000	27,732,000	34,098,000	115,403,000	342,875,000	33.7	
1907	51,317,000	13,986,000	32,142,000	38,471,000	135,916,000	394,759,000	34.4	
1908	47,660,000	12,315,000	26,271,000	30,871,000	117,117,000	332,574,000	35.2	34.1
1909	50,905,000	14,834,000	27,940,000	33,960,000	127,639,000	379,744,000	33.6	
1910	45,900,000	18,390,000	34,210,000	40,988,000	139,488,000	417,111,000	33.4	
1911	53,679,000	14,201,000	30,760,000	39,117,000	137,757,000	405,907,000	33.9	
1912	59,865,000	15,286,000	34,529,000	41,787,000	151,467,000	450,105,000	33.7	
1913	61,619,000	17,166,000	36,201,000	46,267,000	161,253,000	478,435,000	33.7	32.8
1914	57,589,000	16,641,000	18,843,000	39,098,000	132,171,000	422,704,000	31.3	
1915	58,830,000	17,006,000	22,455,000	40,974,000	139,245,000	442,624,000	31.5	
1916	66,195,000	20,094,000	34,728,000	43,188,000	164,205,000	502,520,000	32.7	
1917	86,199,000	26,539,000	40,749,000	47,816,000	201,303,000	551,791,000	36.5	
1918	89,291,000	30,679,000	45,813,000	50,558,000	216,341,000	579,386,000	37.3	35.7
1919	60,863,000	20,912,000	35,877,000	42,350,000	160,002,000	465,860,000	34.3	
1920	88,631,000	29,091,000	45,276,000	49,824,000	212,822,000	563,734,000	37.8	
1921	69,603,000	20,320,000	31,943,000	34,090,000	155,956,000	415,952,000	37.5	
1922	58,468,000	19,133,000	26,954,000	31,961,000	136,516,000	422,268,000	32.3	
1923	79,310,000	26,229,000	40,546,000	56,618,000	202,703,000	564,157,000	35.9	

\* Covers Allegheny, Armstrong, Beaver, Butler, Greene, Lawrence, Mercer and Washington Counties.



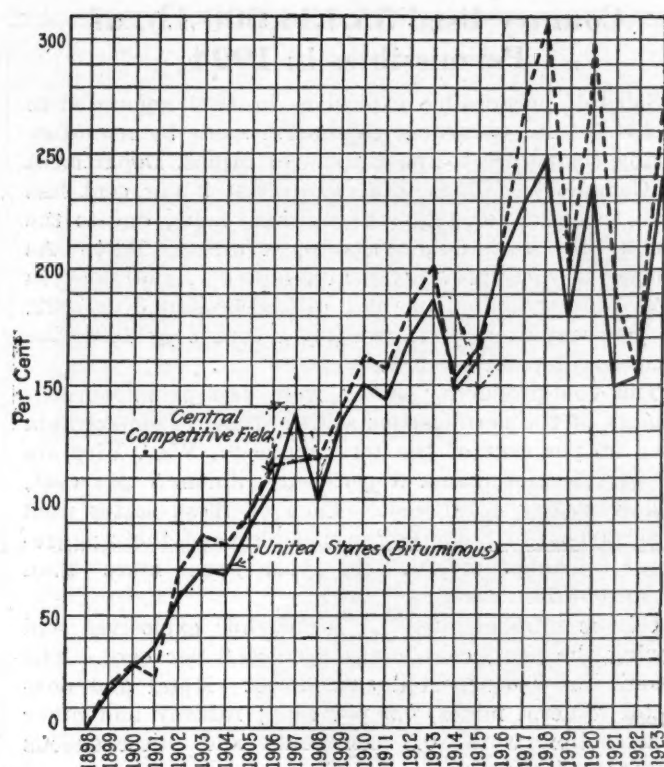


Fig. 5—Has the Central Competitive Field Kept Step?

The increase in production, on a percentage basis, since 1898 shows little variation when the growth of the Central Competitive Field is compared with the growth of the United States as a whole. As a matter of fact, the increase in production, taking 1898 output as 100 per cent, has been somewhat greater in the Central Competitive Field than in the United States.

union. The 1906-08 contract restored the rates in effect on March 31, 1906, and the upward movement was renewed. Compared with basic day rates for inside labor in effect in Illinois mines in 1899-1900, the rates continued under the Jacksonville agreement, and still in effect, represent increases of 414 and 394 per cent. In 1899 inside day labor received \$1.75@1.90; today the rates are \$7.25 and \$7.50.

The base (Danville district) pick-mining rate, to which practically all of the other mining rates are differentially adjusted, has risen from 40c. a ton under the 1898-99 agreement to \$1.08—an increase of 270 per cent. The thin-vein Pittsburgh rate was 42.73c. per ton in 1898; at the present time it is \$1.1164. These increases are shown graphically in Figs. 3 and 4. The mining rates in the other districts making up the Central Competitive Field show like trends. Due to the imposition of flat increases on the base rates, there have been some variations in percentage increases, but the general trends have been the same.

What effect, if any, has this union control with its advancing wage rates had upon production? A comparison of the production record of the Central Competitive Field as a unit with that of all the bituminous coal producing districts of the United States is not unfavorable to this union-dominated region. Despite the inroads made by other districts, the figures incorporated in Table II show that the Central Competitive Field has maintained its relative position with an almost insignificant fluctuation. On a percentage basis, taking 1898 output as the base, the line of increase closely parallels that of the country as a whole. As a matter of fact, Fig. 5 shows that, except during the first years of the century, the percentage gains in the Central Competitive Field have been slightly greater

than those registered by all the bituminous mines of the United States.

But the picture changes when the Central Competitive Field is broken up into its component state units. The fluctuations become more violent. Illinois and Indiana reveal a much more rapid, and, on the whole, consistent, growth than do Ohio and western Pennsylvania. In these variations in relative growth, pictured graphically in Fig. 6, we glimpse the situation which has caused the rising tide of dissatisfaction with the policies of the United Mine Workers of America. The picture changes, too, if a comparison is made between average daily output in the Central Competitive Field today with corresponding periods two years ago.

Inasmuch as the general level of production for the country as a whole has been below that of 1923, this in itself would not be particularly conclusive. The rub

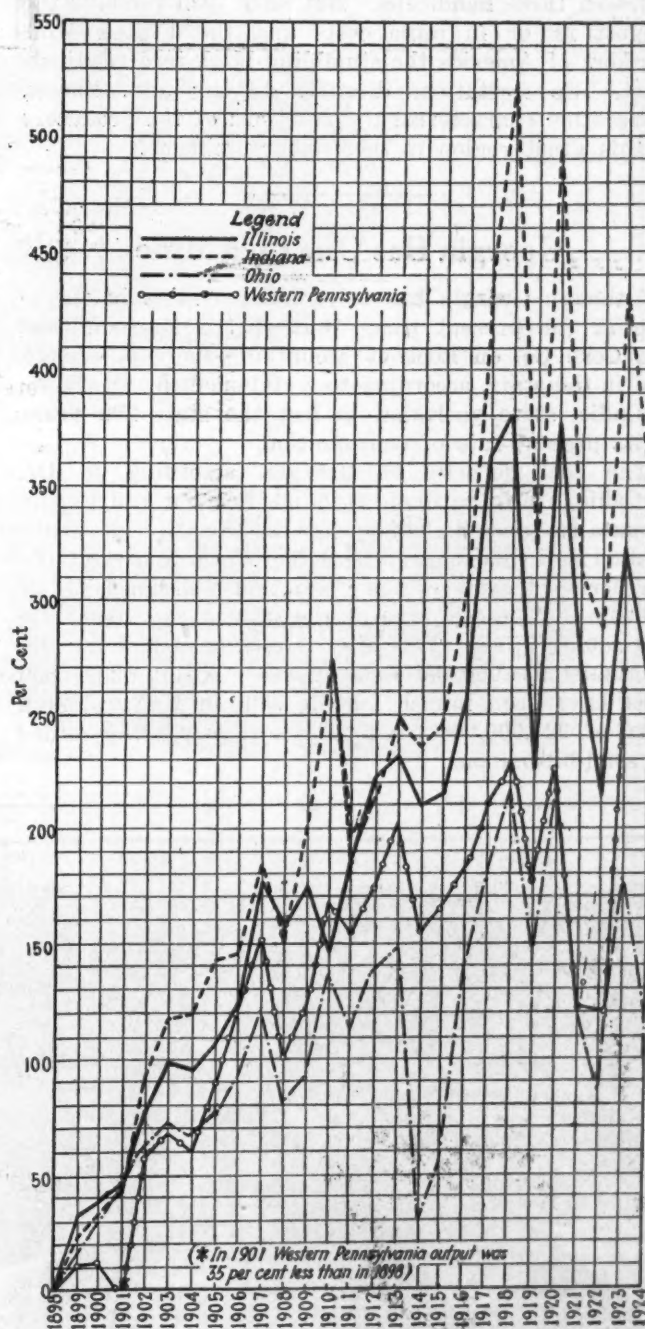


Fig. 6—An Unevenly Distributed Increase

The gains shown in Fig. 5 have not been evenly distributed among the component parts of the Central Competitive Field. On the percentage basis, Indiana has gone ahead faster than the other districts, and Illinois ranks second. Ohio and western Pennsylvania, more exposed to non-union competition, have lagged.

comes in the fact that the output in non-union West Virginia and eastern Kentucky has been exceeding the rate maintained by those unorganized fields in 1923, while the four states in the Central Competitive Field show a rate considerably under the 1923 indices for the corresponding weeks.

To say that labor alone is responsible for a retrograde movement in Ohio and western Pennsylvania would be stretching the truth. There are other competitive factors which enter into the situation, not only in Ohio and Pennsylvania, but also in Indiana and Illinois. There are the factors of quality, of preparation, of transportation, of merchandising acumen. In some cases freight rates are a big handicap; in others the rate structure is protecting the high-cost operating fields from more intensive competition.

The operators have not been idle: they have tried to lessen these handicaps. But labor still remains the biggest factor in mine costs and the United Mine Workers of America the stumbling block to a readjustment. So irritation, disgust, despair and, finally, desperation characterize the reactions of the producers in this great region to their labor problems.

### Georgia Has One Coal Mine

Although Georgia has only one coal mine in operation at the present time—that of the Durham Coal and Coke Co. on Lookout Mountain—there is enough coal in the state, according to a statement by Dr. S. W. McCallie, state geologist, to last the state 200 years at its present rate of consumption.

The coal deposits of Georgia, according to Dr. McCallie, are to be found in Sand, Lookout and Pigeon Mountains, and lie chiefly in the counties of Dade, Walton and Chattooga, where they form a part of the northern extension of the Coosa and Warrior fields of Alabama. The coal area of the state is approximately 170 square miles. This area is estimated to have had originally 933,000,000 tons of coal. About 12,000,000 tons have been mined, leaving still in the ground a total of 921,000,000 tons. The coal now being mined is semi-bituminous.

### Country Used 55,134,000 Lb. of Permissibles in 1924

Sales of permissible explosives in 1924 amounted to 55,134,151 lb., according to reports made by manufacturing companies to the Bureau of Mines, Department of Commerce. This total was about 9 per cent less than the total for 1923, the decrease being due to the decline in the production of coal during 1924. As compared with previous years, however, the sales in 1924 represented an increase of 21 per cent over 1922, 25 per cent over 1921, and 2 per cent over 1920, the record year prior to 1923.

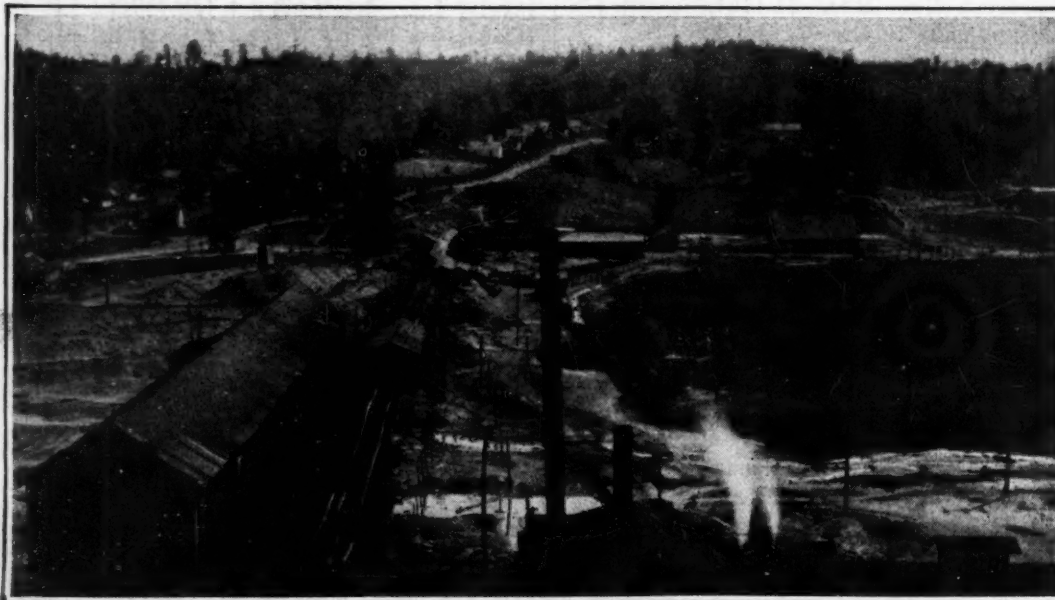
The coal-producing states were the principal consumers of the permissibles sold in 1924. Pennsylvania used 50 per cent of the total quantity, West Virginia 17 per cent, Alabama 9 per cent, Illinois 7 per cent, and Kentucky 4 per cent. Each of these states used 1,000,000 or more lb. of permissibles and their aggregate consumption for the year was more than 47,000,000 lb.

Of the total quantity of permissible explosives sold during the year, coal mines used 94.6 per cent. The remainder was reported as follows: Metal and non-metal mineral mines, 0.9 per cent; railway and other construction work, 0.5 per cent; and miscellaneous purposes, 4 per cent.

### New Detonator Is Devised

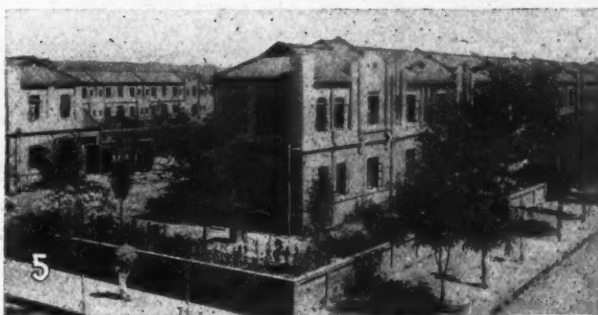
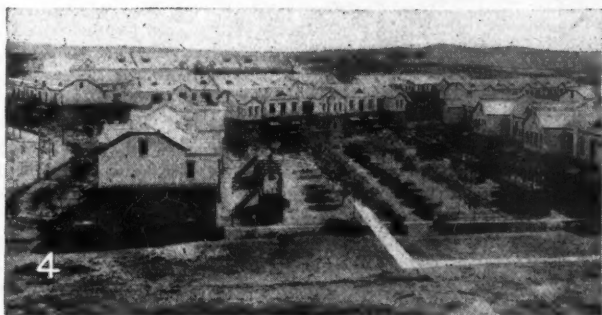
A superior detonator for high explosives has been devised by the Bureau of Mines. It has been found that silver azide retains its explosive properties regardless of the presence of moisture. This overcomes one of the objections of mercury fulminate, which loses its sensitiveness under certain conditions of use in some mines.

In connection with its efforts to find new uses for silver the Bureau investigated all of the unstable compounds of silver. While the superiority of silver azide has been demonstrated, none of the other compounds gave promising results although silver fulminate is a thoroughly efficient detonator and can be substituted for mercury in case of an emergency.



#### Kentucky Mine

Plant of the Rogers Bros. Coal Co., at Bevier, Ky. Note in the foreground the steam exhaust from a small direct-current plant, and just beyond it the transformer substation of the power company. The Rogers Bros. mine is one of a very few that has abandoned purchased power and reverted to the use of the old direct-current power plant.



### Modern Mining Community at Fushun, Manchuria

The coal mines at Fushun, Manchuria, were acquired in 1907 by the South Manchuria Ry., which has made Fushun one of the model colliery towns of the world. Up-to-date methods have been brought

from the United States including the sand-flushing system. The views shown in the illustration are: 1—Auditorium for the entertainment of employees of the Fushun colliery; 2—Elementary school building; 3—Re-

lief crew at the Fushun colliery; 4 and 5—Homes of employees and skilled workers at the Fushun mines; 6—Mund gas works connected with and forming a part of the Fushun colliery.



## News Of the Industry



### New Strike Move in West Virginia Launched with Parade and Speeches; 2 per Cent Respond, Say Operators

Fairmont, W. Va., Sept. 29.—Coal operators of northern West Virginia assert that the call to the non-union miners to strike Sept. 25 is a flat failure, and that all but three of the mines in the region were working with a full complement of miners early this week. A statement issued by the producers reports that less than 2 per cent of the total of 12,000 to 13,000 men that had been working removed their tools in compliance with the union's notice to quit.

Officials of the Consolidation Coal Co., the largest producer in the region, said that they had their usual force at work for a Monday following a pay-day, and that some of the mines had more men than usual.

Open-shop mines produced 1,444 cars of coal Saturday, the first day of the strike, or 36 cars less than the previous Saturday and 82 cars less than two weeks before, when a pay day was observed.

Non-union operations, with 200 mines working, loaded 1,483 cars of coal on Monday, or 116 less than on the previous Monday and 120 less than two weeks before.

#### Union to Fight On

Van A. Bittner, chief international representative of the United Mine Workers, announced in a statement that "the response to the strike has exceeded our expectations. Several mines where we had no organization at all have been completely closed down." He added that the union would continue the fight and that he had "arranged to stay in West Virginia until the battle is over."

John L. Lewis, international president of the miners' union, prior to leaving Fairmont for Scranton, Pa., stated that the United Mine Workers would keep up the campaign "in northern West Virginia regardless of the length of time it takes to completely unionize the mines and compel the coal operators to abide by the terms of the Baltimore and New York agreements."

The miners allege that the Irona mine of J. H. Weaver & Co., near Kingwood; the Willard mine of the Fairmont & Baltimore Coal Co., the Despard mine of the Despard Fuel Co., in the Clarksburg field, and the Owings mine of the Consolidation Coal Co. were affected early this week. Between the miners' strike, a lull following pay day

and the opening of the hunting season there were some defections, which probably will be made up later in the week.

When Lewis arrived in Fairmont to take part in the demonstration arranged by the union for Saturday he was greeted with a barrage of injunctions, but he told the 25,000 to 30,000 assembled miners and their families that the day would never come when the coal operators would be able to print enough injunctions to drive the miners' union out of West Virginia.

#### Meeting Starts With Parade

The meeting began after a parade of 8,000 men, women and children held in connection with the issuance of the strike order. The other speakers were International Vice-President Philip Murray and Secretary - Treasurer Thomas Kennedy. Van A. Bittner was chairman.

In his remarks Mr. Lewis said that the United Mine Workers had just started to fight in northern West Virginia and asserted that few of the coal operators had made any money since the struggle began and intimated that they would not do even as well in the future.

"Led by the Pittsburgh Coal Co. and the Consolidation Coal Co., the two largest coal producing companies in the United States," said he, "many operators in western Pennsylvania, northern West Virginia and central Pennsylvania have repudiated the Jacksonville agreement and have struck down the wage structure of the industry."

#### Lewis Attacks Operators

"In their mad efforts to escape their honest obligations to free American labor, the coal operators in these districts have not failed to utilize every instrument of oppression and repression. They have torn up their wage contracts; they have closed their mines for long periods in order to starve their employees into submission; they have evicted their employees from their homes; they have manned their properties with armed mine guards; searchlights, barbed wire fences, stockades and such paraphernalia of war; they have resorted to the use of unfriendly courts and have sought to bind the workers hand and foot by the issuance of court injunctions, stripping the worker of nearly every right guaran-

#### Murray Generalizes

Philip Murray, international vice-president of the United Mine Workers, asserts that many independent coal companies operating under the Jacksonville agreement are making money. In a statement issued in Pittsburgh, Pa., the miners' official says there is no justification for the reduction in wages asked by the Pittsburgh Coal Co., but he failed to cite any companies that were actually making money operating under a genuine Jacksonville scale.

Murray pooh-poohed the "excuse" by the Pittsburgh Coal Co. that a wage cut would increase its business and give the employees more regular employment. "There are today 22,000 men at work in the mines of District No. 5, all of whom are enjoying the provisions of the Jacksonville agreement," he said.

Murray failed to state whether these men were working one day a week or six days.

"It is obvious that coal mining is an intermittent occupation and cannot provide steady employment to the miners," he said further.

There are many who will agree with him.

teed him under the Constitution; they have, in substance and effect, conducted a campaign of community terrorism in the isolated mining villages.

"This is a situation which should command the attention of the public and of the government. The stability of the entire bituminous industry is threatened by this reprehensible conspiracy and attack upon the very principle of collective bargaining in the coal industry. Some of the individual coal operators who have violated their agreement with the United Mine Workers are men of national prominence and are looked upon as being leaders in business, in finance and in statecraft. Their action bodes ill for the future."

"The mine workers have been taught to believe that a wage contract once entered into should be preserved with sanctity and honor and its mutual obligations should be fully liquidated. Are the mine workers of the nation now to be taught that a wage agreement is no longer binding, and that recognition of the principle of collective bargaining by the employees is merely a sham and hypocrisy? If this be true, then the nation's industry faces a future of chaos and confusion. If it be not true, then the organized mine workers have

## Operators Reiterate Their Stand; Miners Repudiate Arbitration In Hard-Coal Controversy

The Anthracite Operators' Conference, at a meeting at the Railroad Club, New York City, Sept. 24, reiterated its stand that the strike in the hard-coal region should be settled on a basis which will avoid future suspensions. The members voted to decline any settlement that does not provide for arbitration of all grievances and continuous operation of the mines pending the making of new wage agreements. "We want peace," asserted W. W. Inglis, chairman of the operators' section of the anthracite subscale committee, "not a truce."

The Conference formally adopted a resolution approving the work done by the subscale committee in its fruitless negotiations with the United Mine Workers at Atlantic City, N. J., before the strike. The meeting was attended by the full membership of the operators' subscale committee and many other hard coal producers. S. D. Wariner, president of the Lehigh Coal & Navigation Co. and chairman of the Conference, presided.

No sign of a break in the strike situation proper was visible as the suspension entered its second month. The position of both sides is unchanged. Reports from the region indicate that the financial status of the strikers is still comfortable. The only official word from the United Mine Workers was a telegram addressed to the New England Retail Coal Dealers' Association defending the union's refusal to submit the controversy to arbitration. The telegram was sent in answer to a speech of Walter Gordon Merritt, general counsel for the Anthracite Operators' Conference, in which Mr. Merritt told the New Englanders that responsibility for the tie-up rested with the union and urged arbitration.

On Sept. 28 the Scranton Chamber of Commerce, at its first fall meeting, laid plans to offer its services as an agency for ending the strike. Resolutions were adopted placing the chamber on record "in favor of the principles of mediation and arbitration." In order that the organization might be in a position to intervene if the outlook for such action appears propitious,

Ralph E. Weeks, head of the International Correspondence School; Ralph A. Amerman, banker, and E. J. Lynett, newspaper owner, were appointed a committee "to co-operate in bringing about a renewal of negotiations between operators and mine workers, and it was further

"Resolved, That the committee be directed to use its efforts in bringing about the adoption of a new working agreement containing a clause providing that in the future when differences arise that cannot be adjusted in joint conference or through mediators these differences shall be submitted to impartial and competent arbitrators. In the interests of the anthracite producing communities and that portion of the public using anthracite coal we urge miners and operators to immediately resume negotiations looking forward to a new agreement."

It was intimated that there would be a further announcement of the committee's plans. Two of the members, Messrs. Weeks and Amerman, were prominent in the work of the Citizens' No-Strike Committee, which failed in its efforts to avert the strike. In view of the union's attitude toward arbitration, it is probable that the new committee will be unable to make any headway with Mr. Lewis and his associates unless the committee's platform be substantially modified.

### Latrobe Coke Plants Resume

Derry No. 1 and the Duquesne plant of the Latrobe-Connellsville Coal & Coke Co., at Bradenville, Pa., resumed operations last week.

Orders have been issued for the immediate firing of 320 ovens at the Carpentertown plant, near Mt. Pleasant, and it is said that the outlook is good for the firing of ovens at the Beatty plant of the same company within the next two weeks.

The Greensburg-Eastern Coal Co. has announced that within a week the mining of coal will be resumed. The Cambridge Coal Co. has announced an increase in wages.

a right to expect a sufficient crystallization of outraged public sentiment to compel those coal interests who made the agreement to abide by its provisions.

"The federal government has an obligation in the premises. The Jacksonville agreement was negotiated and executed with the aid and co-operation of high government officials. By the same token the industry has a right to expect that the moral influence and power of those same government officials will be utilized to preserve the integrity of the agreement and to maintain in the public weal the tranquillity of the coal industry.

"There can be no misunderstanding or beclouding of the issues involved in this question. The mine workers simply ask that those coal operators who executed the three-year wage agreement with the United Mine Workers be compelled to live up to their contracts and not act the part of industrial knaves and poltroons who seek to render to their employees less than is their just due.

"It is the purpose of the organized mine workers to exercise their strength and influence to preserve the honor of their wage agreement and to demand that under its provisions fair treatment be accorded them."

## Britain's Coal Peace Short Lived; Volunteer Body Prepares for Strike

Predictions that the "settlement" of Great Britain's coal troubles arranged less than two months ago would be only temporary are coming true already. After meetings with Premier Baldwin on Sept. 23 and 24 the miners have arranged to hold a special conference on Oct. 9 to consider the situation and decided to boycott the recently appointed Coal Commission until a real settlement is reached.

The miners charge Premier Baldwin with breaking the pledge given by him to them and the trade union movement to the effect that there would be no reduction in wages or increase in working hours during the "coal truce" arranged last month, pending a final settlement of differences between the miners and owners.

They assert that the Premier is siding with the contention of the owners that they can cut wages. At Tuesday's meeting with the Premier the miners' representatives pointed out that certain mine owners were reducing wages by tampering with basic rates. After considering the matter over night, the Premier stated that as the 1924 agreement was to continue and since under that agreement the base rates were variable, they were variable also during the truce.

While there is no immediate danger of a crisis like that of a few weeks ago, the miners are in no mood for calm and dispassionate consideration of the ills of the industry.

A volunteer organization to be known as the "Organization for Maintenance of Supplies" has been set up in preparation for the general strike which many people think to be not far off. It is compiling a register of all willing to assist in maintaining vital services of the nation in the event of a crisis. The President is Lord Hardinge and among the members of the council are Admiral Jellicoe, Major Gen. Lord Scarborough, Lord Falkland, Lieut. Gen. Sir Francis Lloyd and Admiral Sir Alexander Duff. The organization is stated to be non-political and will enroll volunteers of both sexes as special constables, workers in maintaining public service and transport, drivers, messengers, cyclists and clerks.

Four categories of recruitments are proposed: First, for the protection of public services, and, if necessary, to act as special constables; second, operating the railways handling foodstuffs; third, to act as drivers of vans and lorries; fourth, messengers, in the event posts, telegraph and telephone communications are stopped.

### Alberta Strike "Settled"

"The coal strike at Drumheller, Alta., is now as good as settled," a special despatch to the *Edmonton Journal* from Drumheller says. "The miners recognize that the three Gouge mines will remain U. M. W. but they claim that the Mid-West mine has recognized the new union and hope other mines will do the same. It is expected that all the mines will be working this week."

## Coal Mine Accidents

### Kill 195 in August;

### Rate Below Last Year

Accidents at coal mines in the United States in August, 1925, caused the loss of 195 lives, according to the U. S. Bureau of Mines. As the amount of coal mined was 53,765,000 tons, the fatality rate for the month was 3.63 per million tons, compared with 3.45 for the preceding month and 4.07 for August last year, a reduction of 11 per cent.

Reports for August showed 46 fatalities at anthracite mines in Pennsylvania and 149 at bituminous coal mines in all states. As production of anthracite in August was 8,882,000 tons, the per-million-ton death rate was 5.18, as compared with 5.36 for August last year and with a ten-year average rate of 5.83 for August. Bituminous mines produced 44,883,000 tons of coal in August, thus indicating a fatality rate of 3.32 per million tons as compared with 2.82 last year and 3.90 average for August during the ten years 1915-24.

In the first eight months of 1925 there were 1,461 fatalities; in the corresponding period last year 1,661. The eight months' tonnage was 381,840,000 and 363,520,000, in the two years, respectively. These figures indicate a fatality rate of 3.83 per million tons for the present year and 4.57 for the first eight months of 1924, a reduction of 16 per cent. The eight months' fatality rate for anthracite mines alone was 6.11 per million tons, based on a production of 62,489,000 tons, as compared with 5.67 and an output of 59,-

### Miners Vote to Postpone Convention Till 1927

A referendum on the proposal to postpone the biennial convention of the United Mine Workers until January, 1927, has received almost unanimous approval.

It was announced at headquarters of the organization, in Indianapolis, Ind., Sept. 21, that the principal business of the convention would be the formulation of a new wage scale agreement to supplant the one entered into with the operators at Jacksonville, Fla., in 1924, and which expires in 1927.

The holding of a convention in 1926, the next regular year, is deemed unnecessary by union officials.

247,000 tons during the first eight months of 1924, an increase in the death rate of 8 per cent. For bituminous mines alone the fatality rate for January to August was 3.38, based on a production of 319,351,000 tons, as compared with a rate of 4.35 and an output of 304,273,000 tons for the corresponding months last year.

A comparison of the per-million-ton rates from various causes for the first eight months of the two years follows:

	Jan.-Aug. 1924	Jan.-Aug. 1925
All causes.....	4.569	3.826
Falls of roof and coal.....	1.895	1.781
Havilage.....	0.622	0.618
Gas or dust explosions.....	1.265	0.670
Explosives.....	0.184	0.194
Electricity.....	0.140	0.115

### Neekamp to Urge Canal From Kentucky to Lakes

C. J. Neekamp, of Ashland, secretary of the Northeast Kentucky Coal Association, has been appointed a member of the Kentucky commission to advance the projected construction of a canal from eastern Kentucky coal fields to the Great Lakes. Mr. Neekamp states that the commission is to meet at Toledo within the next thirty days. The proposed canal, if constructed, would connect the eastern Kentucky coal fields to Atlantic ports by way of the Great Lakes and the St. Lawrence River.

There has been spasmodic agitation for a good many years for a canal from the Ohio River to the Great Lakes, but it has not met with any success. In recent years canals have been proposed from Toledo to the Ohio River by way of the Scioto River at Portsmouth and by way of the Miami River near Cincinnati. A good deal of engineering work has been done on the various canal projects and much data has been compiled.

It is explained by Mr. Neekamp that the eastern Kentucky-Great Lakes canal is proposed to be part of the general Ohio-Lakes canalization plan.

The Central Pennsylvania Coal Producers' Association informs Eugene C. Hultman, vice chairman of the New England Governors' Coal Committee, that the central Pennsylvania bituminous field can furnish to New England 1,000,000 tons of prepared sizes of low-volatile coal per month in the event of a prolonged anthracite strike.

## Coal-Mine Fatalities During August, 1925, by Causes and States

(Compiled by Bureau of Mines and Published by Coal Age)

State	Underground											Shaft				Surface						Total by States				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas or dust explosions.	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1925	1924
Alabama.....	8			3	1				1			13			1		1	1						1	15	9
Alaska.....																									0	3
Arkansas.....												3						1							0	9
Colorado.....			2	1								11	1												11	13
Illinois.....	5	1	5									5													5	1
Indiana.....	5											2													2	1
Iowa.....	1		1									1													1	0
Kansas.....	1																								2	1
Kentucky.....	11		1				1					13													13	12
Maryland.....	1										1	1													2	1
Michigan.....																									0	0
Missouri.....																									0	1
Montana.....																									3	1
New Mexico.....	1	2										3													0	0
North Dakota.....																									0	0
Ohio.....	8		2		1							11											2	2	11	8
Oklahoma.....																									0	2
Pennsylvania (bituminous).....	19	4	5	1				1	1			31						1							32	24
South Dakota.....																									0	1
Tennessee.....																									0	0
Texas.....																									0	0
Utah.....																									0	1
Virginia.....	3		1									4													4	6
Washington.....	1					1						2													2	3
West Virginia.....	26	3	1				1		1			32	3	1	1	1	6	1				1	1	3	41	38
Wyoming.....																									0	3
Total (bituminous).....	91	10	18	5	2	1	2	1	3		1	134	4	1	2	1	8	2	1			1	3	7	149	137
Pennsylvania (anthracite).....	13		3	13	7							37								1		8	9		46	37
Total, August, 1925.....	104	10	21	18	9	1	2	1	3		2	171	4	1	2	1	8	2	1	1		1	11	16	195	
Total, August 1924.....	76	9	31	9	13		11		6		9	164						2	2	1		3	10			174

## Strikers Encouraged By Public's Failure to Prepare for Long Strike

By Paul Wooton

Washington Correspondent of *Coal Age*

If the present strike should continue as long as did that of 1922 it would run into the dead of winter. If this should happen it would be the first time in the history of the industry that production of anthracite has been at a standstill during the cold months. The great strike of 1902 was settled on Oct. 25. The strike of 1922 ended Sept. 11. The lesser disturbances seldom have run beyond midsummer. Stoppage in winter means that no coal would be leaving the mines currently. There would be no mobile supply of anthracite to take care of emergency needs.

Knowing that production would be only 60 per cent of normal, it was relatively simple in 1922 to adopt a rule under which each customer received 60 per cent of his normal requirements and, knowing just how much he would receive and with some anthracite on which to build, the consumer easily could eke out his needs with substitutes.

A very different situation presents, however, when nothing is passing through the distribution machinery. The bituminous operators, even with the best of intentions, cannot match, on short notice, a system which the anthracite industry has been a generation in building up. They have neither the records nor the intimate familiarity with the habits of the domestic consumer in anthracite territory.

Anthracite consumers practically have wasted four precious weeks that should have been devoted to frenzied stocking of substitutes. New England is doing something in the way of planning, but little progress has been made in moving soft coal into consumers' bins.

The public in the anthracite-using area realizes that if the men go back by Nov. 1 no one will know there has been a strike. Even if the men stay out they know there would be no serious trouble until Christmas, and that seems a long way off. Observers in Washington believe that these consumers are underestimating the difficulties which they may be called upon to meet and are overconfident of their ability to meet them. They are going along blithely without any conception of the difficulties that would surround the obtaining of substitutes for the 1,000,000 tons of anthracite they burn each week in cold weather.

These consumers are in a position to exert a potent influence on the duration of the strike. Heavy buying of substitutes in September would have put a different complexion on the situation even now. Since the best month for providing this reserve largely has been frittered away, it has had the effect of encouraging the mine workers. They believe their prospects are brightening. They have the savings and other resources necessary to stay out as long as they did in 1922.

Some think the New England governors would be justified in becoming somewhat jingoistic. Were they to



William F. May

Mr. May is supervising engineer of the New York office of the Anthracite Coal Service, the bureau established by the hard-coal operators to hold the front line trenches against the forces of fuel oil and bituminous coal. The Anthracite Coal Service is busy analyzing the fuel problems of large industrial consumers and also co-operates with the retail coal merchants in keeping the wagon steam trade sold on anthracite. Mr. May brings to his task a wide practical experience in land and marine engineering. He can meet the fuel-oil engineer on his own ground because Mr. May himself was once a fuel-oil addict before the Anthracite Coal Service plucked him from the burning.

familiarize themselves with some of the horrible details of what has happened in the insufficiently fueled cities of Russia, they could paint pictures calculated to arouse the people to a point where they would act. While there is no possibility in this country of freezing people en masse, actual distress has to be avoided by some form of political pressure which makes for unstable settlement and has all the debilitating results which follow too much paternalism.

### Picnic Spirit Still Prevails

Traveling in his sedan at a moderate speed through a town in the upper section of the anthracite field, where the miners are on strike, a man well acquainted in the region was handed a "pink" slip to appear in court to answer a charge of speeding. The officer who handed it to him is a striking miner serving as a police deputy.

Before the date set to answer the summons the alleged speeder decided to talk the matter over with a coal company official in charge of a mine in this little town. Just as soon as the subject was mentioned the coal company man said he would fix up the matter so that payment of a fine would not be necessary. In explaining the reason for the unprovoked charge, he said, "You see, the boys [meaning striking miners] want to have a little clambake next week and are therefore raising the necessary funds by pinching everybody going through the town in a closed car."

## Handle Coal Ten Times In 15 Miles

Cars of coal shipped from the Shiloh mine, near Belleville, Ill., to East St. Louis, Ill., but fifteen miles distant, are handled no less than ten times between the mines and the National Stock Yards, East St. Louis, K. B. Hannigan, assistant traffic manager for the Southern Ry., testified before the Illinois Commerce Commission in East St. Louis, Ill., Sept. 18. The commission is taking testimony under an application of the Perry Coal Co. for a reduction of freight rates on coal shipped within a radius of twenty miles of East St. Louis.

Hannigan stated that the rate to East St. Louis is 91c. and to St. Louis \$1.16 and that a rate of 44c. between East St. Louis and St. Louis is never used.

The hearing has lasted for several days. The railroads have introduced testimony of city officials and miners from towns outside the 20-mile zone to show that any cut in the present rate would serve to break up existing groups and ruin business for many.

Those who testified for the railroads were William E. Church, Mayor of Lenzburg, Ill.; E. T. Hoffman, Mayor of Beckemeyer, Ill.; A. J. Hummert, superintendent of the Breese-Trenton mine; H. G. Koch, grain dealer, of Breese; H. C. Hall, merchant, Poca-hontas, Ill., and a member of the Bond County Board of Supervisors.

There are two other cases pending before the commission. Mines outside the 20-mile zone seek to benefit from any cut in freight rates allowed the close-in mines while other coal companies beyond a zone of 60 miles from East St. Louis are asking a reduction to conform to any decreases given the first two zones.

### Kentucky Still Fights Against Raise in Differentials

J. Van Norman, attorney for the West Kentucky Coal Bureau, Louisville, appeared before the Interstate Commerce Commission, in Washington, Sept. 22, to protest against a proposal of the Alabama Coal Operators Association to increase to 50c. a ton from 25c. the present differential in the freight rate from west Kentucky over Alabama on coal moving to the Mississippi Valley. Kentucky is now at a disadvantage in handling the Mississippi Valley business and some convincing arguments were produced. The Louisville & Nashville R.R. and Illinois Central R.R. backed the Kentucky interests.

Kentucky rates have been a bone of contention of late, due to non-union production costs, etc. Just recently the famous Lake Cargo case was settled in favor of the east Kentucky operators, but Governor Pinchot, of Pennsylvania, is trying to have it reopened. A third complaint is from Virginia operators, who want the differential increased from 20c. to 50c. a ton on Kentucky coal over Virginia. A fourth case is that of the southern Illinois operators, seeking an increase from 25 to 50c. a ton in the differential on Kentucky coal moving to Chicago and the Northwest.

### Seek Solutions for Hazards Of the Underground

Discussion, with printed papers presented but not read, formed the basis for the meetings of the Mining Section of the National Safety Council at Cleveland, Sept. 29-Oct. 1. The papers had been distributed before the meeting, and, as the members had read them, all that was needed was a brief presentation, after which the members discussed them at length.

E. A. Holbrook, dean of the School of Mines and Metallurgy, Pennsylvania State College, outlined the hazard from falls of roof and coal and the means of approaching the problem, having reference to the engineering problems, those of organization and the personal equation. Mr. Holbrook believed that where more men were placed in charge of safety more economies were effected. Men too often were not instructed as to the manner in which danger might be avoided. Some even did not know how to sound the roof.

R. V. Ageton, safety engineer of the Tri-State Zinc and Lead Ore Producers Association, in his address declared that the attempt to promote safety by fear made men adventurous and anxious to prove they could cheat death by their agility and intelligence. He declared that goggles had been introduced into a mine by giving them to two men, letting the rest clamor for them.

#### Employs Psychology

Had they been forced on the miners or even urged on them with precepts and bulletins they would have reacted unfavorably to them and refused to wear them, as they had in other mines. Later men from other plants were found to be "stealing" the goggles, believing that it was unsafe to work without them. To Mr. Ageton it seemed that it was never well to impose a lot of commandments on men. They resented being constantly admonished even when it was done for their good.

The experience of Utah with safety regulations of a drastic kind was recited by Daniel Harrington, consulting engineering of Salt Lake City, Utah. He declared that the cost entailed by some of the regulations was not as great as the savings they effected. Others cost but little, and on the whole only about 10 per cent of the operators and 10 per cent of the men would now return to the old ways of operating. It is fair to say that many of the new methods are not new to some of the operators, and this Mr. Harrington made clear.

K. T. Sparks, safety engineer, Central Mine Rescue Station, Wallace, Idaho, spoke on institutions for centralizing mine rescue work, and William Conibear, safety engineer, Cleveland Cliffs Iron Co., Ishpeming, Mich., described the safety practices of his company.

From A. W. Dickinson, safety engineer, the Union Pacific Coal Co., Rock Springs, Wyo., the members learned of the advanced methods of ventilation, mine inspection and rescue work introduced by his company, which has a special ventilation engineer in charge of that feature of operation and has inspections made by committees at each mine.

### Business Best Able to Regulate Itself

Governmental regulation of business, while perhaps necessary for a small section of the business world, can never do as well as business can do for itself, is the conclusion of the National Industrial Conference Board in a report on the "Regulation of Competitive Practices." The "real basis for hope of the preservation of the competitive system of business enterprise lies in its own power of self-regulation," the report says.

While the Federal Trade Commission has been of value in relieving the congestion of the courts and its activities are effective in many cases of unfair competition where appeal to the courts is impractical, in the view of the Conference Board, much is also being accomplished in a positive way by the growing activity of voluntary business associations in purging industry and trade of undesirable tactics. While government regulation is useful and effective in a negative way, says the board's report, the initiative of trade bodies in ridding commerce and industry of unfair practices is more significant of the "transformation now going on from cut-throat warfare for profits toward a more chivalrous competition."

F. C. Gregory, resident engineer of the U. S. Bureau of Mines, Duluth, Minn., questioned whether the best results could be obtained in the depressing mental atmosphere of a mine rescue training station, however equipped. He believed in dramatization. Though he didn't bring out the resemblance he used the word "maneuvers," and he evidently believed that the men and officials of a mine should be taught in the same way that is used to instruct the rank and file and the officers of an army in the business of war.

The National Safety Council had a number of other interesting meetings including an executives' session, a health session and a general session on public safety and education. There were also an A B C session for safety men and meetings of the American Society of Safety Engineers.

### Repeal of Hoch-Smith Resolution Sought by Indiana Interests

A movement to repeal the Hock-Smith resolution adopted at the last session of Congress, which ordered the Interstate Commerce Commission to investigate the entire freight-rate structure in the United States, was launched recently at a meeting of the traffic and freight committee of the Indiana State Chamber of Commerce. Twenty-eight traffic managers of industries over the state and secretaries of Chambers of Commerce in a number of Indiana cities, attended the meeting and the committee expressed its position as opposing all general increases in freight rates as proposed by the carriers.

### Herrin Blast Kills Three; Massacre Suspects Dead

Three coal miners were killed and a fourth probably fatally burned in a gas explosion Sept. 26 in Mine 7 of the Consolidated Coal Co., near Herrin, Ill.

The bodies of the dead miners, James Galligan, a cousin of Sheriff George Galligan; William Druzinski and John Fulkins, were recovered after they had been entombed several hours. Pete Serena was rescued, though he was so severely injured that he may not recover.

The explosion resulted from accidentally touching off a gas pocket. The mine normally employs 500 men, but only a few were at work when the explosion occurred. All except three reached the surface.

Galligan was indicted for participation in the Herrin massacre of 1922, but never was tried.

Otis Clark, who also was among those involved in the 1922 massacre, was found shot to death in front of his home, near Herrin, Sept. 27.

Clark was tried twice for the mine murders and twice acquitted, despite the state's evidence that he was the man who took control of the mob after it left the mine, led Superintendent McDowell down a side road and fired the first shot that killed the non-union workers.

Clark was the first man indicted for the massacre and was arrested as he attempted to flee from the county.

Since the trial Clark had been operating a soft-drink establishment. When his body was found Sunday morning a revolver was clutched in one hand.

### Plan to Supply Coal Needs Of New England

Ways to expedite the movement of an adequate supply of bituminous coal to New England were discussed at a conference at the State House, Boston, Mass., on Sept. 26. Those participating were John Hays Hammond, chairman of the New England Governors' Coal Committee; Eugene C. Hultman, Massachusetts Emergency Fuel Administrator; C. B. Huntress, of the National Coal Association, and Harry L. Gandy, executive secretary of the association.

Mr. Gandy gave assurances of willingness and ability of bituminous operators to meet the fuel requirements of the six New England states, but stated that as a practical means of handling the situation a survey of definite needs should be made by each state. Mr. Gandy pointed out that surveys which show need only in tonnage requirements for a state do not give sufficient information. He suggested that state committees make canvasses of dealers and other large purchasers for definite information as to kind, quality and quantity of bituminous coal desired, which would furnish operators with information needed, whereas today operators are in the dark as to coal requirements and prospective purchasers do not know where to get the kind of coal they require.

## Viewpoints of Our Readers

### Is This the Remedy for Low Coal Prices?

Do you suppose anybody ever went down cellar to stoke the furnace, and said to himself: "It's a crime that coal is so cheap"? Do you suppose anybody ever drove in at a service station for gas and said as he counted out his dimes and quarters: "It is at least a misdemeanor to pay so little for gas"? I know a man who has done both.

The price of coal, like the price of oil and natural gas, has always been too low—too low as a resource, if not in the cellar. Coal has been so cheap that it has been profitable to waste it in many ways, particularly by leaving nearly one ton in the ground for every ton brought to the surface, and by burning it in inefficient boilers and furnaces, which obtain only a small fraction of the energy in the coal.

Now there are many good souls who trust in God to see that the human race will never lack the heat and power that is necessary to civilized life; and this is all very beautiful, but we ought not to overload anyone, even God, with responsibilities. As George Otis Smith once said, the motto on our coins should not be made our national policy in dealing with our natural resources. As far as we can see ahead, civilized life will always depend upon coal. The demands of industry are constantly growing; the American coal pile is larger each year; and it is only reasonable that we should ponder a little as to whether later generations will not need the coal that we are wasting.

Cheapness is always an invitation to waste—cheapness of anything. When our forests were worth little or nothing, we cut them wastefully or set a torch to them. When oil was selling for 10c. a barrel in the San Joaquin Valley, the operators let thousands of barrels run to waste down the ravines. Even at the present time we probably use twice as much gasoline and lubricating oil in our automobiles as would be necessary if these products were expensive enough to be worth saving. When natural gas was a mere nuisance in the oil fields, it was, of

course, wasted outright or sold to carbon plants—which was about the same thing. Whatever is cheap is wasted; and of course coal in the ground, before any labor has been put on it, is very cheap. It would be hard to estimate its value, but, except in the case of anthracite or the higher grades of coking coal, it would not be worth more than a few cents a ton. And so it is ruthlessly wasted.

No censure is due the individual who wastes cheap coal. No man could handle it economically, at a profit. No operator could dig all the coal in his lease regardless of quality or thickness of veins, and stay in business. The settlers who burned the woods; the oil men who piped ten-cent oil off to a safe distance and burned it; the coal operators who left 40 per cent of the coal in the ground, were doing about the best they could. Their product was not worth saving carefully.

### HIGH PRICES BRING CONSERVATION

There is only one way to encourage economy in the use of coal—or any other resource—and that is to raise the price of it. Or you can turn this around and say that it is impossible to raise prices without encouraging economy. It is impossible to raise the price of anything without reducing the quantity consumed. That is why I never could see the point to government efforts to keep coal prices down, while leading government officials were preaching the gospel of conservation. Let me repeat: There is no conservation without high prices; and there can be no high prices without conservation.

If coal prices were raised considerably—let us say doubled—coal would be economized in many ways. Seams that were not worth mining before could be mined profitably. Locomotives would be built which would get perhaps 100 per cent more energy from a given quantity of coal; and furnaces would be greatly improved. Hydro-electric power, or "white coal" would be developed to take the place of some of the coal power, and windmills would be built to utilize wind power. Houses would be made warmer, so they would not require so much heat. Wood, millions of cords of it, would be burned in stoves

that now burn coal; and of course the supply of wood can be renewed for a million years.

Suppose we admit the need for conservation, how can we make coal expensive enough to encourage its conservation? The most obvious means would be a change in our taxation system, in two directions: In the direction of a lower tax, or no tax at all, on coal deposits; and in the direction of a heavier tax on coal production. A tax on coal resources, or deposits, or lands, or whatever they may be called, is an encouragement to exploitation leading to low prices of coal, and, therefore, an encouragement to waste. On the other hand a tax on coal production would discourage production, encourage higher prices of coal, and, therefore, encourage conservation. There seems to be no good reason why any tax should be levied.

This idea is not radical or untried. It has long been recognized by taxation experts that the tax on standing timber should be light, while the main burden of taxation should be on the lumber cut. Pennsylvania has her tax on anthracite exploitation; several states have "severance taxes," on oil production; and at least one state has such a tax on coal production. In foreign countries, mineral deposits are usually owned by the government, but, of course, this means that the resource itself is not taxed, at any rate.

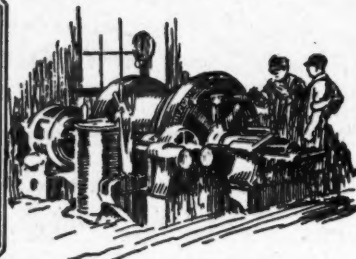
### PAY TAX OUT OF PROFITS

Such a scheme of taxation has many advantages. In the first place, it would levy the tax at the time when the taxpayer was in a position to pay it easily. A coal company gets no revenues from coal deposits until they are put on the market—and that is the logical time to assess the tax. In the second place, such a scheme would fit the tax to the income more exactly than any tax on deposits ever could, since it would be paid at the time the income accrues. In the third place it would make coal mining a somewhat less speculative business, since the operator would not be subject to taxation far in advance of the receipts of a commercial income; and finally, and most important, it would have a tendency to conserve our coal deposits. Some will think this unnecessary, but the day when our coal is gone will probably be a cold day for the human race. JOHN ISE,

Professor of Economics.  
University of Kansas.



## Practical Pointers For Electrical And Mechanical Men



### Converter Operates Satisfactorily From Two Transformers

Doing the right thing in an emergency often prevents a shut-down. Emergencies, however, do not often arise; therefore a man in charge of equipment may not have had previous experience with a certain emergency when it appears. For that reason it pays the electrical man to gather information on the best methods for combating various out-of-the-ordinary failures of electrical equipment that might occur.

There have been many instances of unnecessary shutdowns of mines because of troubles with synchronous-converter substations. The type of converter equipment most commonly used is the six-phase, diametrically-connected machine in combination with three single-phase transformers. Some of the unnecessary shutdowns which have occurred could have been avoided had the electrician known that such a converter will operate satisfactorily with but two transformers in circuit, provided the

average load is not over 57.7 per cent of full load rating of the machine.

Reuben Lee, chief electrician, of Stanaford, W. Va., describes the case of a 300-kw. converter of the Elkhorn Piney Coal Mining Co. being operated for several days with all of the brushes removed from one collector ring. This ring developed a flat spot of such degree that it could not be remedied by ordinary stoning. During the middle of the week the sparking got so bad that a shutdown of the converter and therefore of the mine seemed imperative, but as the result of a "happy thought" the brushes were raised from the damaged ring and the converter continued in operation until Sunday, when the flat ring was trued and ground to first-class condition.

Raising all of the brushes from one ring is equivalent to disconnecting one transformer entirely; therefore, if a transformer fails it can be

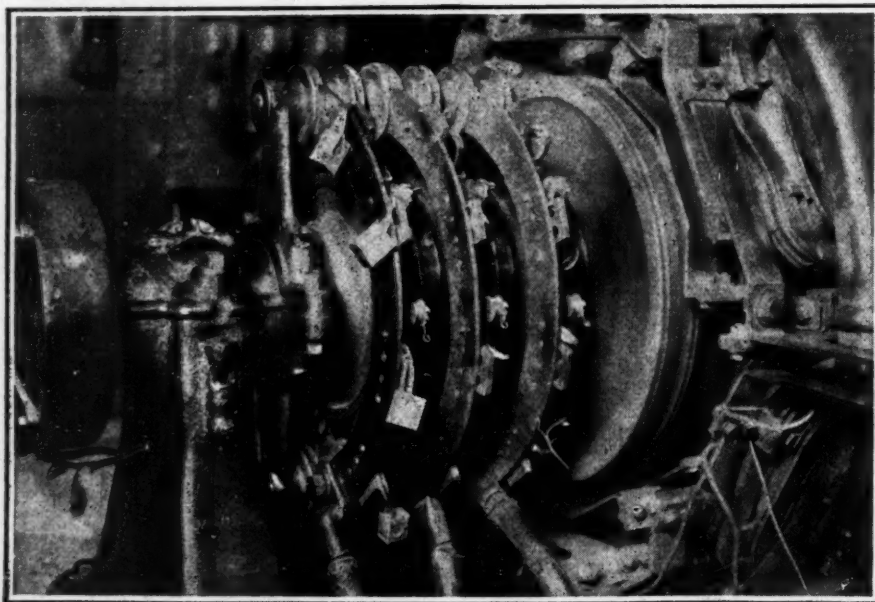
cut out and the converter operated on the remaining two, provided the average load is not over 57.7 per cent of full-load rating. Mr. Lee stated that he found that the converter would not always start from a standstill when being operated from two transformers unless the armature was turned by hand to a certain fixed position.

### Small Mine Jobs for a Little Foundry

An interesting phase of car-wheel repair work is shown in the accompanying illustration. It involves an application of foundry work which is unusual. The car wheel we use has a pallet in the hub which serves as an abutment for the cotter key in the end of the axle. This pallet is cast in when the wheel is made and occasionally breaks out, thus leaving the wheel free to run off the axle, which it promptly does.

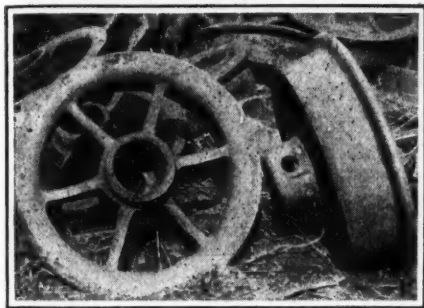
Until we developed our method of repair we sent the wheels back to the makers, who furnished new wheels for those that had failed. The cost of freight both ways made this an expensive arrangement so we made some experiments in repairing them. After a few failures we succeeded in getting a satisfactory method.

Several  $\frac{3}{8}$ -in. holes are drilled in the wheel hub opposite the location of the broken pallet. The wheel is then placed in the sand in the foundry with the open end of the hub up. The bottom of the hub is filled with molding sand up to the level of the outside face of the pallet and then a split core is inserted in the wheel. This core makes the mold for the pallet and locates it opposite the holes which were drilled in the hub, the holes making an anchor for the new pallet. A mixture of hard bronze, made from our mine shop scraps, is then poured into the space between the core and the bore of the wheel. When cold the sand is knocked out and the wheel is ready for service.



Operating with All Brushes Raised from One Ring

During one week a ring of this six-phase converter developed a flat spot which caused severe sparking. A shut-down was avoided by removing the brushes from the ring. This was equivalent to cutting out one transformer. The affected ring was repaired the following Sunday.



#### Salvaged Wheels

It is a simple job to repair these wheels when they break at the hubs. The cost of repair at the mine is lower than the freight charges to and from the factory.

Our foundry has eliminated another source of expense and trouble. Mine repairmen do not always watch the journal brasses in their locomo-

tives as closely as they might, with the result that they sometimes wear out, letting the journal run on the cast box. Of course this injures the journal, frequently cutting into the axle to such an extent that a new axle has to be installed. We have succeeded in eliminating a lot of this trouble by making the journal boxes at our foundry, casting them from scrap bronze. This metal has proved to be amply strong for the purpose and does not cut the axle if the brass is allowed to wear out. Incidentally, the cost of these boxes is much less than the factory cost.

R. R. SCHELLENGER,  
Electrical Engineer.  
Elkhorn Coal Corporation,  
Wayland, Ky.

#### Lights and Power Supplied By Battery

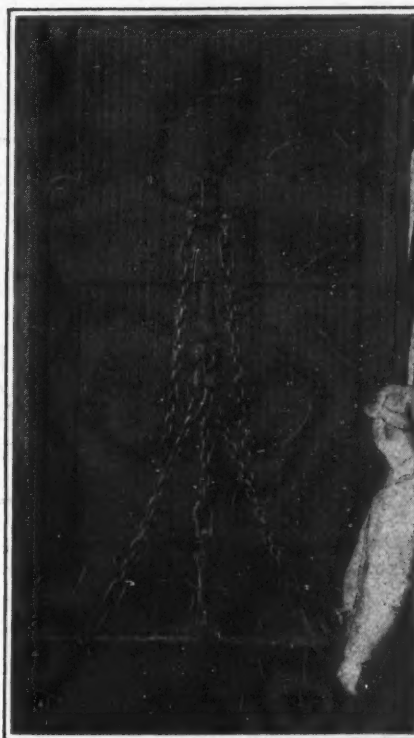
The big game in the coal industry today is to operate efficiently whenever the mines have an order to fill. There is, however, another side to the problem and it presents itself when the mine is shut down. The main thought then should be: operate efficiently all the time, for a mine must "operate" even though idle. Water must be pumped, props must be set too and repairs must be made to keep the equipment in working condition or better its efficiency when a coal order is to be filled.

The accompanying illustration shows how the Madison Coal Corporation at Glen Carbon, Ill., operated efficiently last summer when some of its mines were idle. A storage battery taken from a mine locomotive is used to drive the machinery

in the electric repair shop. By this arrangement the power plant at this mine did not have to be kept in continuous operation to generate power for the repair shops or lights used at night. Only when the storage battery became nearly discharged was the power plant put in service. The labor savings made at the power plant and the fact that the storage battery was kept in better condition by working it, helped materially in lowering the shutdown expenses.

#### Special Clamp on Cable Makes Hoisting Safer

A marked characteristic of most of the equipment installed at the Pennsylvania Coal Co.'s mines is the extra safety features embodied. The accompanying illustration shows how the hoisting cable at one of the

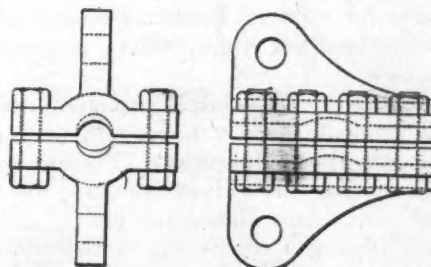


#### Extra Clamp Holds Cable

The upper of the two clamps will come into use should the regular attachments break.

mines is attached to the shaft cage.

It will be noticed that in addition to the usual attachments used for this purpose an extra clamp is



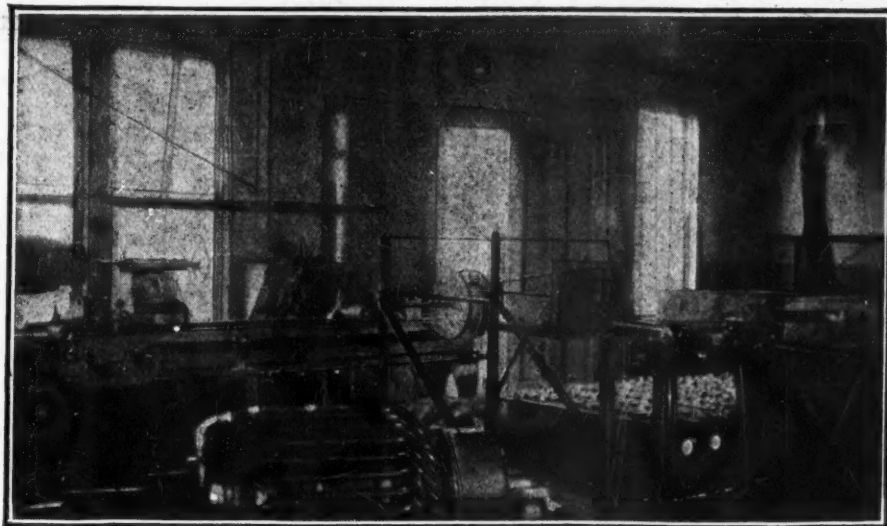
#### Design of Special Clamp

This clamp is designed to hold the cage from breaking away if an accident occurs. The cable is held more securely by means of a kink or bend put in it by the clamp.

fastened farther up on the cable. In the picture a loose chain extends on each side of the clamp to separate attachments on the top of the cage.

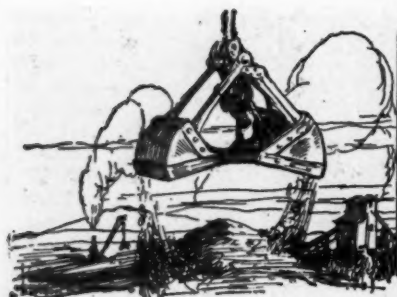
In ordinary service the cage is suspended on the short pieces of chain secured by means of a clevis to the end of the hoisting cable. Should the clevis or attachments connected to the end of the rope break, the auxiliary clamp together with its chain come into service, thus serious accidents are made remote.

The design of the clamp is such that it grips the cable and also provides lugs to which the chains can be fastened. The accompanying sketch shows the important features of the clamps used with a 1½-in. hoisting cable.

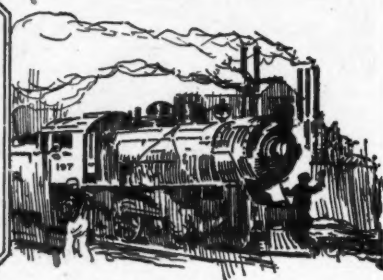


#### Storage Battery Supplies Lights and Power During Idle Period

Because overhead charges during periods when mines are shut down eat up the small profits made on few orders every reasonable means should be employed to reduce costs when the mine is idle. Here is a storage battery from a locomotive, which permits the boiler plant to be shut down.



## Production And the Market



### Reaction Continues in Bituminous Coal Market; All Sides Sit Tight on Hard Coal

The reaction which set in a few weeks ago in the soft-coal market showed no sign of abatement last week; if anything, it was somewhat more marked. The flurry of buying that set in when the anthracite suspension began, which was expected to last at least as long as the hard-coal miners remained out, has fallen far short of expectations; as a matter of fact thus far the cessation of operations at the anthracite mines has had scarcely any appreciable effect on the bituminous coal trade.

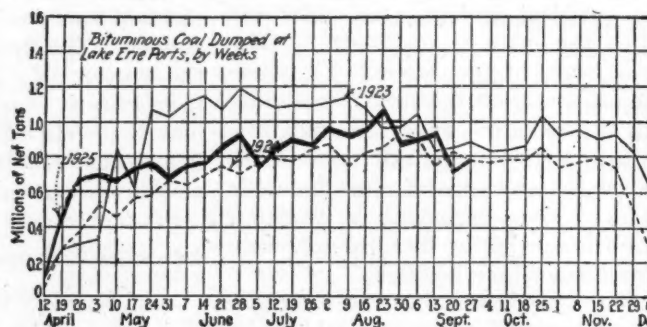
The easing tendency has been quite general, demand having tapered off, accompanied by a shaving of prices, in practically all the principal markets. The sag continues to be most striking in the case of smokeless coal, though this is no more than natural considering the sudden and striking increase in production and prices a few weeks previous. Movement has slackened in Kentucky also, with a resultant paring down of quotations, save for western Kentucky screenings, which are much stiffer and not offered freely, producers expecting better prices.

Aside from belated shipments to the lakes, which continue in good volume, and railroad coal, orders are slow in the Middle West. Producers are having trouble in moving screenings and are catching up on lump orders. Many Illinois mines are getting shorter working time and conditions in Indiana are none too good. Production is gradually increasing in Ohio, though business reflects no striking change. Trade is perking up at the Head of the Lakes, in Kansas, Utah and Colorado, with little change in Arkansas and Oklahoma. The tendency to moderate is in evidence in New England, New York and Atlanta, while Philadelphia and Baltimore are maintaining slight gains.

With hard-coal production held up a full month the old line companies have only buckwheat and a little pea

to offer. In the wholesale trade only a few cargoes of independent coal are available, and these are being held for \$15@ \$16 alongside for chestnut and \$17@ \$18 for egg and stove. Most dealers are reluctant to pay such prices, however. Retailers are still well stocked with chestnut, pea and steam sizes, but stove and egg are getting scarcer.

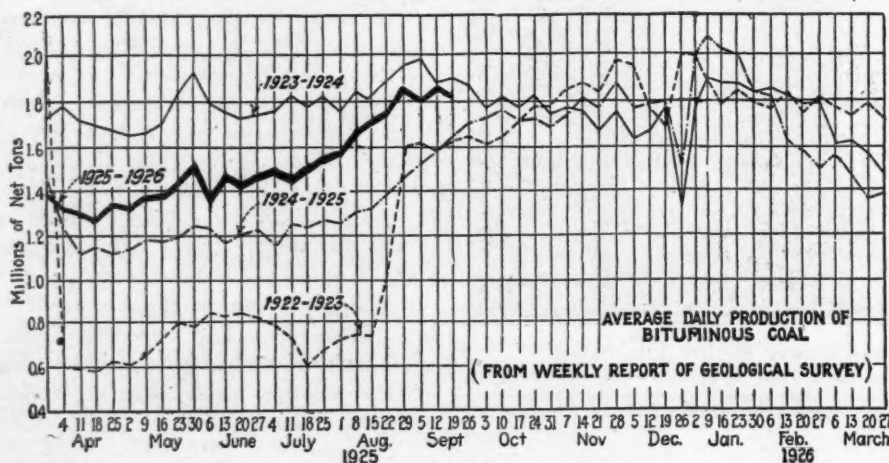
Bituminous coal production during the week ended Sept. 19 is estimated by the Geological Survey at 10,867,000 net tons, compared with 9,983,000 tons in the holiday week, preceding, as shown by revised figures. Nine thousand tons of hard coal, presumably from



dredges and small washeries, was shipped in the week ended Sept. 19, compared with 5,000 tons the week before.

Coal Age Index of spot prices of bituminous coal on Sept. 28 stood at 176, the corresponding price being \$2.13.

Dumpings at Lake Erie ports during the week ended Sept. 27, according to the Ore & Coal Exchange, were: Cargo, 744,853 net tons; steamship fuel, 44,764 tons—a total of 789,617 net tons, compared with 754,122 tons in the preceding week. Hampton Roads dumpings during the week ended Sept. 24 totaled 427,363 net tons, compared with 332,097 tons in the previous week.



#### Estimates of Production

(Net Tons)

##### BITUMINOUS

	1924	1925
Sept. 5 (a).....	8,208,000	10,827,000
Sept. 12 (a).....	9,835,000	9,983,000
Sept. 19 (b).....	10,156,000	10,867,000
Daily average.....	1,693,000	1,811,000
Cal. yr. to date..... (c)	328,569,000	349,100,000
Daily av. to date.....	1,486,000	1,575,000

##### ANTHRACITE

Sept. 5.....	1,451,000	432,000
Sept. 12.....	1,820,000	5,000
Sept. 19.....	1,851,000	9,000
Cal. yr. to date..... (c)	65,429,000	61,653,000

##### COKE

Sept. 12 (a).....	111,000	167,000
Sept. 19 (b).....	122,000	172,000
Cal. yr. to date..... (c)	7,248,000	6,915,000

(a) Revised since last report. (b) Subject to revision. (c) Minus two days' production to equalize number of days in the two years.

## Orders Slow in Middle West

During the past week in the Western markets orders have come in slowly, and the surplus accumulated in the past two weeks will be cleared up soon. From all appearances lump coal will be offered freely again within the next few days; while large lump sizes are still in fair demand, the operators have plenty of the smaller prepared sizes to offer. Operators still have considerable trouble in moving screenings because large buyers hold back. Though conditions in the Illinois fields have been fairly good for some time, the situation in the Indiana fields is rather poor. A large number of mines are still closed on account of no business in sight, but what hurt most right now are the strip operations where coal can be produced at such ridiculously low prices that the operator with union wages cannot compete.

West Virginia coal has been freely offered to the Chicago trade for what it would bring. On Pocahontas, which ten days or two weeks ago brought \$5@5.25 on some orders, the market has dropped to such an extent that coal is freely offered at \$4@4.25.

The cool weather of the last few days has not materially affected demand; dealers seem to have plenty of stock on hand to cover whatever orders they get, and from all indications they are not inclined to place new orders until surplus stocks are cleaned up. Demand for domestic coal has almost ceased, and if it were not for surplus orders on

file, they would have to go out and scout for business.

Williamson, Franklin and Saline counties still show the effects of the warm spell and domestic sizes move slowly. The mines are catching up on lump orders, egg is slow and nut is worse. There has been little activity in steam sizes. Mines are getting shorter time by a day and some have knocked off two days in the last week. Railroad tonnage is quiet at the shaft mines and good from strip mines. The latter are working full time and are making a price in order to move their product, and preparations are going on throughout the field for other mines to open up about Oct. 1. There has been no change in prices in this field.

In the Duquoin and Jackson County field the movement of coal is light and working time has dropped off one day a week. There is no railroad tonnage out of this field to speak of excepting a little from strip operations. The Mt. Olive district has gone back almost to summer schedule. Business is unusually light and a large number of "no bills" await colder weather. Steam is about equal to demand and contracts. Working time is about three to four days a week. The Standard field is unusually quiet. Coal is still being sold at about cost of production and all mines have "no bills" of all sizes with the exception of screenings, which seem to move freely. Railroad tonnage is light and working time is practically back to summer schedule. Prices are unchanged.

Domestic deliveries at St. Louis are light although they

## Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Sept. 29 1924	Sept. 14 1925	Sept. 21 1925	Sept. 28 1925†
Smokeless lump.....	Columbus....	\$4.10	\$4.75	\$4.75	\$4.50@4.75	
Smokeless mine run.....	Columbus....	2.10	2.55	2.55	2.40@2.75	
Smokeless screenings.....	Columbus....	1.20	1.50	1.50	1.40@1.60	
Smokeless lump.....	Chicago....	3.85	4.75	4.75	4.00@4.50	
Smokeless mine run.....	Chicago....	1.90	2.60	2.35	2.15@2.35	
Smokeless lump.....	Cincinnati....	4.00	5.00	4.75	4.50@5.00	
Smokeless mine run.....	Cincinnati....	2.00	2.60	2.60	2.25@2.50	
Smokeless screenings.....	Cincinnati....	1.20	2.00	1.85	1.75@2.00	
*Smokeless mine run.....	Boston....	4.25	5.50	5.20	5.15@5.25	
Clearfield mine run.....	Boston....	1.90	1.85	2.50	1.75@2.10	
Cambria mine run.....	Boston....	2.35	2.10	2.60	1.90@2.35	
Somerset mine run.....	Boston....	2.10	2.00	2.25	1.80@2.20	
Pool 1 (Navy Standard).....	New York....	2.75	2.85	2.85	2.75@3.00	
Pool 1 (Navy Standard).....	Philadelphia..	2.70	2.65	2.65	2.50@2.85	
Pool 1 (Navy Standard).....	Baltimore....	2.55	2.30	2.30	2.25@2.35	
Pool 9 (Super. Low Vol.).....	New York....	2.05	2.15	2.15	2.10@2.30	
Pool 9 (Super. Low Vol.).....	Philadelphia..	2.15	1.95	1.95	1.95@2.00	
Pool 9 (Super. Low Vol.).....	Baltimore....	1.85	2.05	2.05	2.00@2.15	
Pool 10 (H.Gr.Low Vol.).....	New York....	1.85	2.00	2.00	1.90@2.15	
Pool 10 (H.Gr.Low Vol.).....	Philadelphia..	1.75	1.85	1.85	1.75@2.00	
Pool 10 (H.Gr.Low Vol.).....	Baltimore....	1.65	1.90	1.90	1.85@1.95	
Pool 11 (Low Vol.).....	New York....	1.60	1.80	1.80	1.75@1.90	
Pool 11 (Low Vol.).....	Philadelphia..	1.45	1.70	1.70	1.60@1.80	
Pool 11 (Low Vol.).....	Baltimore....	1.55	1.70	1.70	1.70@1.75	
High-Volatile, Eastern		Market Quoted	Sept. 29 1924	Sept. 14 1925	Sept. 21 1925	Sept. 28 1925†
Pool 54-64 (Gas and St.)..	New York....	1.50	1.55	1.55	1.50@1.65	
Pool 54-64 (Gas and St.)..	Philadelphia..	1.50	1.60	1.60	1.50@1.70	
Pool 54-64 (Gas and St.)..	Baltimore....	1.40	1.65	1.65	1.65@1.70	
Pittsburgh so'd gas.....	Pittsburgh....	2.40	2.50	2.50	2.50	
Pittsburgh gas mine run.....	Pittsburgh....	2.10	2.15	2.15	2.10@2.25	
Pittsburgh mine run (St.)..	Pittsburgh....	1.85	2.05	2.05	2.00@2.15	
Pittsburgh slack (Gas).....	Pittsburgh....	1.15	1.55	1.55	1.50@1.60	
Kanawha lump.....	Columbus....	2.10	2.60	2.60	2.45@2.80	
Kanawha mine run.....	Columbus....	1.40	1.70	1.70	1.55@1.85	
Kanawha screenings.....	Columbus....	1.15	1.30	1.30	1.25@1.35	
W. Va. lump.....	Cincinnati....	2.60	2.75	2.75	2.60@2.75	
W. Va. gas mine run.....	Cincinnati....	1.60	1.65	1.65	1.60@1.75	
W. Va. steam mine run.....	Cincinnati....	1.45	1.50	1.55	1.60@1.60	
W. Va. screenings.....	Cincinnati....	.95	1.15	1.15	1.10@1.25	
Hooking lump.....	Columbus....	2.50	2.75	2.75	2.60@2.90	
Hooking mine run.....	Columbus....	1.60	1.65	1.65	1.50@1.80	
Hooking screenings.....	Columbus....	1.05	1.40	1.30	1.25@1.35	
Pitts. No. 8 lump.....	Cleveland....	2.35	2.35	2.35	2.00@2.75	
Pitts. No. 8 mine run.....	Cleveland....	1.85	1.85	1.85	1.85@1.90	
Pitts. No. 8 screenings.....	Cleveland....	1.15	1.45	1.45	1.35@1.45	
Midwest		Market Quoted	Sept. 29 1924	Sept. 14 1925	Sept. 21 1925	Sept. 28 1925†
Franklin, Ill. lump.....	Chicago....	\$3.35	\$3.25	\$3.25	\$3.25	
Franklin, Ill. mine run.....	Chicago....	2.35	2.35	2.35	2.25@2.50	
Franklin, Ill. screenings.....	Chicago....	1.35	1.60	1.60	1.50@1.75	
Central, Ill. lump.....	Chicago....	2.85	2.85	2.85	2.75@3.00	
Central, Ill. mine run.....	Chicago....	2.20	2.10	2.10	2.00@2.25	
Central, Ill. screenings.....	Chicago....	1.15	1.55	1.55	1.35@1.75	
Ind. 4th Vein lump.....	Chicago....	3.10	3.10	3.10	3.00@3.25	
Ind. 4th Vein mine run.....	Chicago....	2.35	2.35	2.35	2.25@2.50	
Ind. 4th Vein screenings.....	Chicago....	1.35	1.60	1.60	1.50@1.75	
Ind. 5th Vein lump.....	Chicago....	2.60	2.35	2.35	2.25@2.50	
Ind. 5th Vein mine run.....	Chicago....	2.10	1.95	1.95	1.85@2.10	
Ind. 5th Vein screenings.....	Chicago....	1.25	1.20	1.20	1.15@1.30	
Mt. Olive lump.....	St. Louis....	2.85	2.50	2.50	2.50	
Mt. Olive mine run.....	St. Louis....	2.50	2.00	2.00	2.00	
Mt. Olive screenings.....	St. Louis....	1.25	1.75	1.75	1.75	
Standard lump.....	St. Louis....	2.85	2.25	2.25	2.25	
Standard mine run.....	St. Louis....	1.80	1.80	1.80	1.75@1.90	
Standard screenings.....	St. Louis....	.80	1.15	1.15	1.15	
West Ky. block.....	Louisville....	2.85	2.10	2.00	1.85@2.00	
West Ky. mine run.....	Louisville....	1.65	1.35	1.35	1.25@1.50	
West Ky. screenings.....	Louisville....	.90	.75	.80	.80@1.10	
West Ky. block.....	Chicago....	2.85	2.30	2.30	1.85@2.25	
West Ky. mine run.....	Chicago....	1.65	1.25	1.25	1.15@1.35	
South and Southwest		Market Quoted	Sept. 29 1924	Sept. 14 1925	Sept. 21 1925	Sept. 28 1925†
Big Seam lump.....	Birmingham..	2.85	2.25	2.25	2.00@2.50	
Big Seam mine run.....	Birmingham..	1.60	1.75	1.75	1.50@2.00	
Big Seam (washed).....	Birmingham..	2.00	1.85	1.85	1.75@2.00	
S. E. Ky. block.....	Chicago....	2.85	3.00	3.00	2.75@3.25	
S. E. Ky. mine run.....	Chicago....	1.60	1.95	1.95	1.85@2.10	
S. E. Ky. block.....	Louisville....	3.00	3.00	2.75	2.75@3.00	
S. E. Ky. mine run.....	Louisville....	1.55	1.60	1.60	1.50@1.75	
S. E. Ky. screenings.....	Louisville....	.90	1.25	1.25	1.10@1.40	
S. E. Ky. block.....	Cincinnati....	2.75	3.00	3.00	2.60@3.25	
S. E. Ky. mine run.....	Cincinnati....	1.55	1.55	1.60	1.50@1.75	
S. E. Ky. screenings.....	Cincinnati....	1.00	1.15	1.15	1.10@1.25	
Kansas lump.....	Kansas City..	4.50	4.35	4.35	4.25@4.50	
Kansas mine run.....	Kansas City..	3.25	3.10	3.10	2.75@3.25	
Kansas screenings.....	Kansas City..	2.35	2.50	2.50	2.35@2.60	

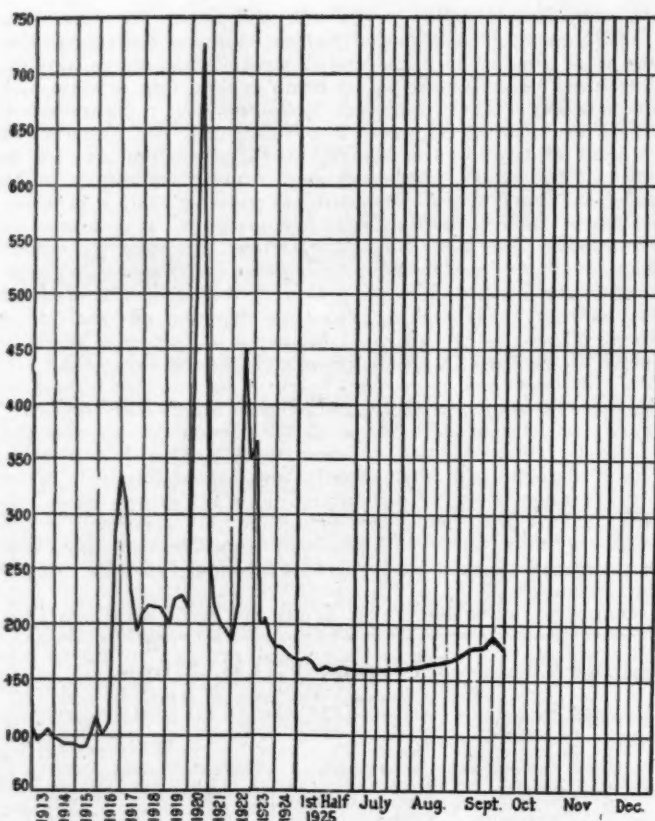
\* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type; declines in italics.

## Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		Market Quoted	Freight Rates	Sept. 29, 1924		Sept. 21, 1925		Sept. 28, 1925†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.34			\$8.00@ \$9.25		\$8.20@ \$8.95		\$8.20@ \$8.95
Broken.....	Philadelphia..	2.39			9.15				
Egg.....	New York.....	2.34		\$9.25@ \$9.75	8.75@ 9.25		8.65@ 8.90	\$14.00@ 15.00	8.65@ 8.90
Egg.....	Philadelphia..	2.39		9.00@ 9.70	8.80@ 9.25				
Egg.....	Chicago*.....	5.06		8.17@ 8.27	8.14@ 8.20	\$8.17@ \$8.60	8.03@ 8.28	8.17@ 8.60	8.03@ 8.28
Stove.....	New York.....	2.34		9.50@ 10.25	8.75@ 9.50		9.15@ 9.40	14.00@ 15.00	9.15@ 9.40
Stove.....	Philadelphia..	2.39		9.35@ 10.00	9.15@ 9.50				
Stove.....	Chicago*.....	5.06		8.63@ 8.75	8.50@ 8.64	10.00@ 11.00	8.48@ 8.80	10.00@ 11.00	8.48@ 8.80
Chestnut.....	New York.....	2.34		9.25@ 9.75	8.75@ 9.25		8.65@ 8.95	14.00@ 15.00	8.65@ 8.95
Chestnut.....	Philadelphia..	2.39		8.85@ 9.80	9.15@ 9.25				
Chestnut.....	Chicago*.....	5.06		8.26@ 8.40	8.44@ 8.60	10.00@ 11.00	8.28@ 8.50	10.00@ 11.00	8.28@ 8.50
Pea.....	New York.....	2.22		5.25@ 5.75	5.50@ 6.00		5.00@ 6.00	6.50@ 7.00	5.00@ 6.00
Pea.....	Philadelphia..	2.14		5.75@ 6.25	5.75@ 6.00		5.00@ 6.00		5.00@ 6.00
Pea.....	Chicago*.....	4.79		5.13@ 5.45	5.36@ 6.20	5.25@ 5.75	5.05@ 5.36	5.25@ 5.75	5.05@ 5.36
Buckwheat No. 1.....	New York.....	2.22		2.50@ 3.00	3.00@ 3.15		2.50	2.60@ 3.00	2.50
Buckwheat No. 1.....	Philadelphia..	2.14		2.50@ 3.00	3.00		2.50		2.50
Rice.....	New York.....	2.22		1.75@ 2.25	2.00@ 2.25		2.00		2.25
Rice.....	Philadelphia..	2.14		2.00@ 2.25	2.25		2.25		2.25
Barley.....	New York.....	2.22		1.25@ 1.50	1.50		1.50		1.50
Barley.....	Philadelphia..	2.14		1.50	1.50		1.50		1.50
Birdseye.....	New York.....	2.22			1.60		1.60		1.60

\* Net tons, f. o. b. mines. † Advances over previous week shown in heavy type; declines in italics.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925	1924
Index	Sept. 28 176	Sept. 14 178
Weighted average price	Sept. 21 2.24	Sept. 29 2.06
	Sept. 14 2.16	Sept. 29 2.06

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke; 1913-1918," published by the Geological Survey and the War Industries Board.

are better than they were a week ago, despite continued warm weather. Buying has been in smaller volume this year than in the past two years. Demand still continues principally for the middle grade coals although southern Illinois is holding its own. Standard is not moving and the demand for anthracite, smokeless and coke is easing. Wagonload steam is beginning to pick up. Local wagonload is fairly good and country steam is inclined to be quiet. Country domestic shows a little improvement on the cheaper coals and a noticeable tonnage is moving from the different refineries of petroleum coke.

### Kentucky Trade Easier

Demand for coal in Kentucky appears to have eased off a trifle. The anthracite situation has had very little general effect so far, and there appears to be no fear of non-union workers in West Virginia or Kentucky going on a sympathetic strike.

Domestic sizes are in slower movement and at weaker prices. Steam demand is largely for screenings, which are firm to stronger. Mine-run is not showing much demand and no improvement in price. Lake movement continues good, but a good many more mines are in operation and offering coal.

Generally speaking, industrial consumption is good and consumption by railroads is heavy.

In eastern Kentucky block coal is a shade weaker at \$2.75@\$3, with some off-grade coal as low as \$2.50. Other prices are steady, with lump, egg and nut \$2@\$2.50; mine-run, \$1.50@\$1.75, and screenings, \$1.10@\$1.40.

Western Kentucky has received a setback due to inability to move block or prepared sizes along with more coal being offered. Block is \$1.85@\$2, lump and egg are \$1.65@\$1.85; nut, \$1.40@\$1.60; mine-run, \$1.25@\$1.50; and screenings,

much stiffer, at 80c.@\$1 for pea and slack, and 90c.@\$1.10 for 2-in. nut and slack.

Western Kentucky screenings are not being offered freely, some operators holding on track for application against contracts or expecting stronger prices.

### Trade Speeds Up in Northwest

A material speeding up has been in evidence in the coal trade at the Head of the Lakes during the last few days. An impetus was furnished in the first touch of cool weather and for the first time this fall retailers were kept on the run in meeting the rush of buying by household consumers.

Twenty-nine cargoes of coal, including two of anthracite, were unloaded at the docks last week, and fifteen cargoes, including one of anthracite, were reported en route. It was regarded as interesting that hard coal should be still trickling up to this market three weeks after the miners' strike had begun. Approximately 3,800,000 tons of bituminous and 200,000 tons of anthracite are on the docks.

The market in prepared sizes of Pocahontas remains where it was placed a week ago, at \$8.50, while mine-run and screenings are unchanged at \$5.25 and \$4.25 respectively.

While the anthracite market is distinctly firm, no advances in quotations have been announced lately, contrary to expectations in some quarters. Growing shortage of stocks of pea and stove sizes was noted. Demand for domestic coke is seasonably quiet at \$8.50 but the trade is looking forward to a run in it later as an anthracite substitute. Briquets are unchanged at \$9.

Demand at Milwaukee is light for the season, according to dock men, but some retailers report betterment, owing to cooler weather. The anthracite situation seems to cause little worry among consumers, although there is a shortage here. Receipts of hard coal by cargo this year up to Sept. 24 total 84,420 tons less than during the corresponding period of 1924. Receipts of bituminous coal by cargo up to the 24th aggregate 455,205 tons more than for the same period of last year. The total amount of coal received here this year to the date named is 2,531,649 tons, against 2,160,864 tons last year during the same period.

### Southwest Notably Improved

A marked improvement in the Southwestern market last week cleaned up all "no bills." Kansas screenings are a little easier, but there is no surplus. Kansas mines are disposing of all sizes as fast as brought to the surface. Screenings, on contract, are selling in some instances at \$2.35, while the car lot quotation remains at \$2.50.

The situation is little changed in Oklahoma from last week. Little coal is being produced around McAlester and at Henryetta output is about as it has been the last two months. In Arkansas, production is picking up in the Greenwood field and is unchanged in the other fields, with a wide spread of prices. Semi-anthracite lump is quoted all the way from \$4.25 to \$6.50, depending on the field and the demand.

In Colorado there has been a substantial increase in the demand for domestic lump coal, but it is disappointing with respect to the nut coal, that being a drug on the market at the present time. However, that situation will undoubtedly be relieved as soon as colder weather sets in. As a result of increased orders for lump and steam sizes the mines are working practically at capacity. Prices are unchanged.

Utah coal operators and dealers describe business as "good." Quite cold weather has set in for this season and orders for coal are larger and more numerous than they have been in many months. All grades are selling well. The car situation on the Rio Grande Western R.R. is still causing inconvenience, but the situation is far from critical so far. Prices are unchanged, and the labor situation was never better. The trade from every angle is in better shape than it has been for a long time.

### Cincinnati Trade Trims Sails

Strike talk and the shifting around of unionists in West Virginia have had little effect upon the Cincinnati market. Production took a slight drop, but apparently as long as there is enough tonnage to go around and no concentration of buying, there will be no tilt upward.

Smokeless business has been floundering a bit. The price was too high in comparison with high volatile and especially

coa's from the Elkhorn and other good domestic districts and too many producers have been on a week to week basis of sale. Even brokers have had to go fishing in the market with lump and egg around \$4.50 and a trifle lower to move some of their tonnage. Shipments carrying a \$5 price were still going forward but from that down to \$4.25 "to the trade" was the spread. Automatically stove sizings slipped to \$3@\$.25, mine-run to \$2.25@\$.25 and screenings to \$1.75@\$.25.

In the high-volatile list Elkhorn and Hazard prices were trimmed a little and while most Hazard shippers were holding out for \$2.75 there was a shaving here and there down to \$2.50 for block. The heavy Logan County (W. Va.) shippers, who have been holding at \$2.50, stabilized these offerings. Mine-run was a trifle easier with the bulk of the steam movement around \$1.50 and the gas still ranging up to \$1.75 according to quality. Slack, too, was a bit easier with the heaviest part of the tonnage running around \$1.10 and from that up to \$1.25 for preferred stuff.

River business is tapering down because of low stage.

Softness in domestic grades is appearing in the Columbus market, due to rather warm weather and the fact that many mines were opened when the anthracite strike began. Dealers as a rule bought heavily at that time and have failed to move as much as they expected, as householders refused to be stampeded by strike news. A considerable retail business was done, however, and dealers are still busy delivering orders booked several weeks ago. Retail prices are rather steady at the higher levels which have prevailed for several weeks.

Steam business showed no particular change in the past week. Buying is mostly from hand to mouth as most of the larger consumers have fair sized reserves. Railroads are taking a pretty good tonnage and the same is true of public utilities. Manufacturing plants are not showing much activity in fuel buying, however. About 225,000 tons of coal is to be supplied to various public institutions under the Ohio government. Some free coal in steam sizes has been offered on the local market, due to the curtailment of the domestic demand, but the amount is not sufficient to have much effect on general market conditions.

Some of the lake shippers find their tonnage contracted for not sufficient and are picking up the excess of domestic sizes in this market, which has helped to keep the trade in good shape.

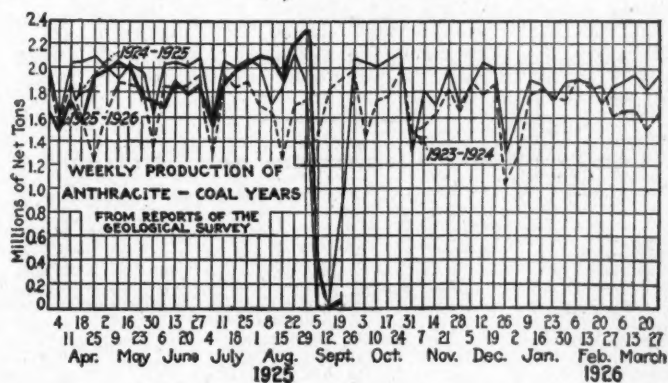
Production in the southern Ohio field is about 35 per cent of capacity.

Although production in eastern Ohio during the week ended Sept. 19 was greater than in any other week of the present calendar year, the market of the past week was very quiet, with demand for both steam and domestic slow so far as the rank and file of consumers and buyers are concerned. Hence the excess in volume is accounted for in the main by increased orders from the railroads and late Lake shipping. Spot prices on slack and nut-and-slack have dropped 5 and 10c. per ton during the week, with no change on other grades.

Retailers remain pretty well stocked with domestic sizes and West Virginia smokeless and eastern Kentucky coals have experienced a rather precipitous drop. Ohio lump for domestic use, however, shows little change.

### Pittsburgh Business Quieter

The market for Pittsburgh district coal was quieter last week. Prices have not suffered, and cannot positively be called even easier in tone, with the exception of slack, which is not quotably lower but is distinctly easier.



Industrial activity has reached as high a stage as can be expected. Steel buying and production have been in balance lately, with virtually no change in the past three or four weeks, since the recent speeding up. The labor outlook remains complicated and uncertain.

At Buffalo there has been no advance in soft coal outside of smokeless and that does not amount to much, for the demand is small and does not show much prospect of picking up right away. The supply is good and the output is equal to any sort of demand that can develop, even on a scare, for the consumers have most of their storage room occupied. Quotations remain at \$1.60@\$.175 for Fairmont lump, \$1.40@\$.150 for mine-run and \$1.25@\$.140 for slack; \$2.25@\$.250 for Youghiogheny gas lump, \$2@\$.225 for Pittsburgh and No. 8 steam lump, and \$1.30@\$.160 for slack; \$1.75@\$.2 for Allegheny Valley mine-run.

### Trade Rather Dull in New England

In general, the New England market is again rather dull, with buying interest developing more among retail dealers than among industrial users. Accumulations are again a characteristic of Pocahontas and New River at Hampton Roads, and in consequence prices let down further last week. Agencies again seek orders coastwise, and offers close to \$5 as a flat price per gross ton f.o.b. vessel are rumored. No. 1 Navy standard has not yet declined to that extent, but practically no shipper today holds his coal for higher than \$5.25. The Western market is not the sustaining influence that was expected, and some producers are eager to try their fortunes in New England all-rail when the new through rates go into effect.

Anthracite stocks here are beginning to show signs of depletion, especially in the larger cities. Already certain distributors are announcing their inability to accept orders for egg, stove and chestnut, and are restricting their sales energies to pea, buckwheat and bituminous. The gradually increased interest in anthracite substitutes will be interesting to watch as the season advances, but thus far the urgent warnings of the public authorities have not shown any appreciable result in the form of increased receipts of bituminous. There is, to be sure, a certain amount of buying by retail dealers, especially of screened coal from the central Pennsylvania districts, but the volume is not large.

On cars for shipment inland also the price level has receded; in some cases \$6.75 has been shaded to \$6.25, and \$6.25@\$.640 for high-grade smokeless coal seems about the range. Both at Providence and at Boston there have been increased arrivals in the past week, owing to pressure at Hampton Roads, and factors apparently will be obliged once more to store coal in anticipation of a market.

A few of the Pennsylvania coals all-rail have brought better prices recently, but for the most part there has been no demand sufficient to influence quotations more than 15c.@25c., except for prepared coal.

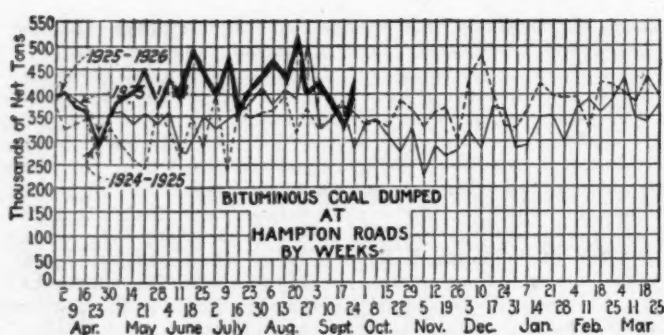
### Business Moderates at New York

New York bituminous shippers report only a moderate amount of new business, but the movement is holding up well because of shipments on orders previously placed. Deliveries on contracts also are heavy, as consumers who have arranged for their winter's requirements are anxious to get stocked up before the arrival of cold weather. Quite a few contracts running to April 1 have been closed during the past two months by consumers who failed to avail themselves of this protection during the regular contracting season. Others are contenting themselves with accumulating good-sized reserve supplies at current prices and taking a chance on the market going higher before they are in need of additional tonnage.

The price trend is not upward but rather the reverse, although no sharp slump has occurred except in West Virginia smokeless coal, which had a much greater advance than the Pennsylvania grades. The latter went up 10 or 15c. on an average, and are being fairly well maintained on the higher level, with here and there an operator willing to shade quotations slightly when necessary to keep his mines running steadily.

A little more free coal is reported at the local piers, but the surplus is not large enough to unsettle the local tide-water market.

The Philadelphia market is in good condition, inasmuch as consumer interest continues to be maintained. There have been no noticeable price increases and the market is



firm at last week's quotations. The railroads are not losing any opportunities to buy when they consider prices right.

There is increased screening of high volatiles, due to better domestic demand for sized coal, particularly for shipment westward. The increased tonnage of screenings is moved without a ripple and the buyers are still looking for more.

The pier business at tide continues to be discouraging and there is no indication that any improvement can be hoped for. Bunkering at least holds its own, with occasional small spurts.

The early part of last week saw a sudden upward trend in the Baltimore market. Stocks at tide became depleted under a rather urgent call for immediate delivery and prices moved up 10c. to 15c. in many cases for spot coal. Quotations on future deliveries remained about the same as for the past three weeks, and this confidence was quickly borne out by a rush of shipments. At present there is a surplus here and spot prices are at the average level that existed just before the flurry of two or three days. The export movement continues in some measure, three vessels having cleared the past week with a total of 8,168 tons cargo.

Buying of domestic coal is proceeding very slowly at Birmingham. There is no worth-while spot demand as yet and hold-ups on contracts are still in order, causing considerable effort by sales agents and brokers in moving current output. Dealers who have moderate stocks are taking coal from the mines about in proportion to the volume of retail sales, which are still abnormally small. Some yards are still without any reserves worth mentioning.

The spot steam market is fairly good, sufficient business being booked to prevent any serious accumulation. Demand for good grades of washed fuel is showing the greatest strength. The medium and lower grades of mine-run and washed product are being taken fairly well. The unbroken drought is still furnishing disposition for a large tonnage to steam power plants, while the extreme heat which has prevailed for some weeks is causing peak operations at ice plants. Other industrial activities are consuming about a normal tonnage. There is little stocking by industrial plants, railroads or other utilities, most of the carriers taking the minimum weekly quotas. Improvement in the bunker trade is slight, if any.

Steam prices are without change. Present quotations on domestic sizes will remain in force in October to a great extent, though some producers will make slight advances in mine prices next month.

Production is on a basis of around 400,000 tons per week. Car supply is adequate and labor is plentiful.

### Healthy Hard-Coal Stock at New York

Retail dealers in Greater New York still have good-sized stocks of chestnut and pea coal, as well as of the steam sizes of anthracite. Their supplies of stove and egg are becoming depleted, but will not be totally exhausted at most yards for some little time to come. The filling of large orders has been discontinued, but consumers have no difficulty in obtaining all the coal they need for current use.

The tonnage available for replenishing retail stocks is limited. Storage plants of all the large producing companies are bare of everything except pea and buckwheat coal, according to local sales agents, and the amount of pea in reserve is small.

Only a few cargoes of independent anthracite in the domestic sizes remain in the hands of wholesalers. These are being held for \$15 to \$16 alongside in the case of chestnut, while the asking prices on stove and egg range

from \$17 to \$18 in most cases. Wholesalers also have a comparatively small tonnage of pea, buckwheat and rice. Their quotations on pea are \$6.50@8, mine basis; buckwheat, \$2.50@3; rice, \$2.25@2.75.

Odd cars of independent domestic sizes are being offered dealers in all-rail territory on the basis of \$14@16 at the mines. This tonnage is being absorbed slowly, as most dealers are unwilling to pay the prices asked.

There is no semblance of a rush by Philadelphia consumers to get coal, but those who are coming find that they are unable to get the most wanted sizes. Dealers with connections on the P. & R. Coal & Iron Co. are filling up with storage pea. As yet there is little call for pea, but when the cold days come to stay consumers will be glad to get it. A light tonnage of coke and sized soft coal was sold during the week.

Buckwheat continues easy with the companies. Some independents able to sell this coal are asking \$2.75, or about 25c. above company price. The companies have a fair stock of rice and are shipping it to regular customers. Barley is out of the market.

A cool spell last week at Baltimore brought an increased demand from householders for delivery of fuel. Dealers for the most part were able to quickly supply this demand, which has again fallen off. It looks as if most of the retailers can continue an average fall supply for three or four weeks longer from stocks on hand. Some independents are asking premiums of \$1 to \$1.50 over August prices, but local dealers are ordering little of this premium coal. Retail prices for September are the same as in August.

The anthracite trade at Buffalo is confined to a limited movement of the small sizes. Some of the companies have not even that. The actual demand is light, though some consumers are hard to convince that there is not some conspiracy against them to hold the coal back for higher prices. The assurance that there is enough coal to last till there is more seems to be accepted.

There is a small trade in coke, but the handlers of it seem to be anxious to spoil it by trying to get more for it than has been asked up to this time. Instead of waiting for the demand to set in they are asking all the way from 50c. to \$2 advance, though some are modestly asking only \$9.50 for it at the curb. The slow handling of it is the worst thing against it.

### Connellsville Coke Market Easier

Eastern buying in the Connellsville coke market has been light of late. The Jones & Laughlin Steel Corporation, noted last week as inquiring for 20,000 tons of coke a month over the fourth quarter, bought more than that and at prices lower than expected. There were operators who insisted they would not sell for October under \$4 and not beyond October unless at an advance, but no reports on prices for Jones & Laughlin are over \$3.75 and in some quarters it is said the average was nearer \$3.50. The purchases were made with a wage clause. The sales in part represent the starting of additional ovens, despite talk of labor supply being poor and of the possibility of additional strikes. One plant, just reopened, is already offering its first drawings, which generally go as heating coke.

The spot and prompt furnace coke market probably remains quotable at \$3.75@4, but there are rumors of some coke being offered at down to \$3.50.

The starting of so many Frick ovens in August aroused fears as to labor, but the Frick company lately has been reducing production slightly. The independent scale is about 30 per cent under the Frick scale and operators are strong against making any advance, as the iron industry could not stand an advance. There are chances of small operators, not counting on operating afterwards, advancing wages so as to make some money during the anthracite suspension.

### Car Loadings, Surpluses and Shortages

	Cars Loaded—	
	All Cars	Coal Cars
Week ended Sept. 12, 1925.....	975,434	157,357
Previous week.....	1,102,946	178,218
Week ended Sept. 13, 1924.....	1,061,781	182,800
	Surplus Cars—	
	All Cars	Coal Cars
Sept. 14, 1925.....	100,368	59,929
Sept. 7, 1925.....	140,998	43,289
Sept. 14, 1924.....	167,157	84,197
Car Shortage—		
Sept. 14, 1925.....		
Sept. 7, 1925.....		
Sept. 14, 1924.....		

## Foreign Market And Export News

### Demand Quiet and Prices Weak In British Market

Dullness and idleness are the predominant features of the Welsh steam coal trade. Though inquiries have increased during the past week they are still insufficient to absorb output and keep the pits working regularly. Though stoppages are frequent, output is much in excess of demand. Prices have reached their lowest point for two years, though this does not attract business.

The Swedish State Railways are in the market for 40,000 tons of coal to be delivered this year, but it is feared that this business will all go either to Germany or to the north of England. The French Navy, which was inquiring for 45,000 tons of Welsh coal or patent fuel, is reported to have placed the order with French briquet manufacturers.

The idle loading berths at the South Wales docks average 30 to 35 a day,

while the vessels in process of loading are delayed by intermittent colliery working. Thousands of trucks are held up under load because of the scarcity of business.

The Newcastle market shows some signs of improvement, which has led some operators to think that the depression has passed its worst stage. It is possible that the situation here is affected by the depression in the German coal industry, which has led importers to believe that prices have reached their lowest level and that further "bearing" tactics are useless. Though inquiries have improved, due no doubt to the approach of winter, actual business is slow in materializing.

Production by British coal mines during the week ended Sept. 12, according to a special cable to *Coal Age*, totaled 4,110,000 tons, compared with 4,255,000 tons in the preceding week.

### Coal Demand Revives Slightly In French Market

A slight revival in demand has taken place in the French coal market since the beginning of the month, judging by shipments from the North and Pas-de-Calais. Expiring contracts are being renewed in most instances.

Interest is largely centered on home fuels, on which summer prices will cease to be applicable at the end of this month. Among the French collieries and Belgian producers for the French market some are inclined to maintain present quotations while others favor an increase, as sized dries and anthracite descriptions are in lively demand from consumers. Semi-bituminous sized grades also are much sought. With regard to industrial fuels electric and gas works are expediting the putting in of winter supplies; but the sugar industry is acting more slowly.

The French wage agreement having expired on Sept. 15 the men seek an increase to 40 per cent in the allowance for the high cost of living, which, a few months ago was reduced to 20 per cent.

Certain Lorraine mines, those of the

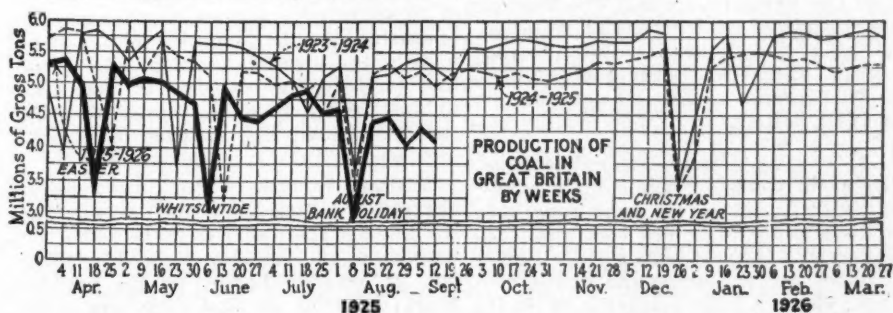
Sarre-and-Moselle and of Petite Roselle raised their prices 3 fr. per ton on Sept. 1.

During the first nine days of September the O.R.C.A. received from the Ruhr 65,568 tons of coke, a daily average of 7,330 tons. Indemnity coke has been advanced 0.25 fr. per ton to 145.95 fr. due to an increase in management expenses of the O.R.C.A.

### Market Develops Weakness at Hampton Roads

The market at Hampton Roads was weaker last week with supplies at the terminals increasing and demand falling off slightly. Foreign business was on the decrease, largely due to settlement of labor difficulties in the British mines.

Inquiries at tidewater were practically normal and many mines were reporting full-time operation. Some were cutting down their forces, which had been increased when the anthracite strike began. Domestic business has been retarded to some extent by unusually warm weather. Many concerns formerly using anthracite were preparing to use soft coal this year, dealers reported.



### U. S. Domestic Fuel Exports in August

	1924	1925
Anthracite, gross tons.....	254,086	476,046
Value.....	\$2,820,498	\$5,390,844
Bituminous, gross tons.....	1,395,866	1,797,603
Value.....	\$6,200,495	\$7,847,715
Coke, gross tons.....	42,308	63,714
Value.....	\$360,316	\$482,03

### EIGHT MONTHS ENDED IN AUGUST

	1924	1925
Anthracite, gross tons.....	2,295,782	2,592,924
Value.....	\$25,397,035	\$29,139,453
Bituminous, gross tons.....	10,159,538	9,844,417
Value.....	\$47,956,873	\$43,842,329
Coke, gross tons.....	377,608	479,158
Value.....	\$3,271,396	\$3,720,275

### Export Clearances, Week Ended Sept. 26, 1925

#### FROM HAMPTON ROADS

	Tons
For Italy:	
Ital. Str. Aurania, for Porto Ferrajo.....	6,913
Ital. Str. Humilitas, for Bagnoli.....	6,014
Ital. Str. Valsavoia, for Gibraltar.....	7,746
For Danish West Indies:	
Br. Str. Navarino, for Curacao.....	7,402
Nor. Str. Visna, for Curacao.....	2,445
For France:	
Ital. Str. Emanuele Accame, for Marseilles.....	11,626
Nor. Str. Hektor, for Marseilles.....	5,890
For Brazil:	
Braz. Str. Taubate, for Rio de Janeiro.....	5,732
Br. Str. Paris City, for Rio de Janeiro.....	8,030
For Canada:	
Nor. Str. Ruth, for Three Rivers.....	5,233

#### FROM BALTIMORE

For Porto Rico:	
Am. Str. Millinocket, for Guanica.....	373
Am. Schr. Nancy Hanks, for Port Jobos and Guayanilla.....	1,562
For Canada:	
Ital. Str. Dalmazia, for Quebec.....	6,233

#### FROM PHILADELPHIA

For Cuba:	
Nor. Str. Vindeggen, for Havana.....	—
Nor. Str. Bloamyra, for Antilla.....	—

### Hampton Roads Pier Situation

	Sept. 17	Sept. 24
N. & W. Piers, Lamberts Pt.:		
Cars on hand.....	1,756	2,105
Tons on hand.....	108,736	129,385
Tons dumped for week.....	145,119	161,313
Tonnage waiting.....	20,000	20,000
Virginian Piers, Sewalls Pt.:		
Cars on hand.....	967	1,274
Tons on hand.....	76,200	98,100
Tons dumped for week.....	57,612	71,862
Tonnage waiting.....	7,656	192
C. & O. Piers, Newport News:		
Cars on hand.....	2,607	2,430
Tons on hand.....	132,430	149,800
Tons dumped for week.....	83,785	139,471
Tonnage waiting.....	115	9,895

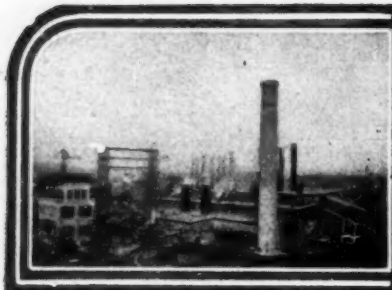
### Pier and Bunker Prices, Gross Tons

	Sept. 19	Sept. 26*
PIERS		
Pool 1, New York.....	\$5.35@ \$5.60	\$5.35@ \$5.60
Pool 9, New York.....	4.80@ 5.00	5.00@ 5.25
Pool 10, New York.....	4.50@ 4.70	4.80@ 5.00
Pool 11, New York.....	4.30@ 4.55	4.50@ 4.75
Pool 9, Philadelphia.....	4.85@ 5.05	4.85@ 5.05
Pool 10, Philadelphia.....	4.55@ 4.75	4.55@ 4.75
Pool 11, Philadelphia.....	5.35@ 4.55	4.35@ 4.55
Pool 1, Hamp. Roads.....	5.35	5.25
Pool 2, Hamp. Roads.....	5.30	5.10
Pools 5-6-7, Hamp. Rds.....	5.00	4.85
BUNKERS		
Pool 1, New York.....	\$5.60@ \$5.85	\$5.60@ \$5.85
Pool 9, New York.....	5.05@ 5.25	5.25@ 5.50
Pool 10, New York.....	4.75@ 4.95	5.05@ 5.25
Pool 11, New York.....	4.55@ 4.80	4.75@ 5.00
Pool 9, Philadelphia.....	5.05@ 5.25	5.05@ 5.25
Pool 10, Philadelphia.....	4.75@ 4.85	4.75@ 4.85
Pool 11, Philadelphia.....	4.60@ 4.75	4.60@ 4.75
Pool 1, Hamp. Roads.....	5.50	5.35
Pool 2, Hamp. Roads.....	5.40	5.15
Pools 5-6-7, Hamp. Rds.....	5.10	4.95

### Current Quotations British Coal f.o.b. Port, Gross Tons

	Sept. 19	Sept. 26*
Cardiff:		
Admiralty, large.....	24s.	24s.
Steam smalls.....	11s.3d.	11s.3d.
Newcastle:		
Best steams.....	15s.	14s.9d. @ 15s.
Best gas.....	17s.6d.	16s.6d.
Best bunkers.....	15s.	14s.6d.

\* Advances over previous week shown in heavy type; declines in italics.



## News Items From Field and Trade



### ALABAMA

The Atlanta, Birmingham & Atlantic R.R. has sold to the Woodward Iron Co. for \$200,000 a branch line approximately 13 miles long which leaves the main line near Bessemer and extends to the Mulga coal mines of the Woodward company. This spur will be used in connection with the Woodward company's own railroad, which is used in transporting coal from the Mulga and Dolomite mines to the furnaces and byproduct ovens of the company at Woodward. A portion of it has been operated under a lease for some time. The railroad company has not used this branch since about 1912.

A number of the most important commercial mines in the Walker County field are now operating on much better schedules than obtained a few weeks back. The Galloway Coal Co. mines at Carbon Hill are on a six-day schedule, those of the Brookside-Pratt Co., near the same point also working full time. Other operations working five and six days per week are the Calumet mines of the Brilliant Coal Co., and the Parrish mine of the Railway Fuel Co. Schedules have been increased also at operations of the DeBardeleben Coal Co., some of its mines now operating full time; the Pratt Fuel Corporation and the stripping operations of the Manchester Coal Co. at Manchester and Saragossa and those of the I. O. Drewery Contracting Co. at Sunlight. All the larger companies still have mines on the idle list, but these will be started up as soon as market conditions warrant.

### COLORADO

Sale of the International Fuel Co. to Arthur Ponsford, Denver attorney, said to be acting for P. J. Quealy, wealthy Wyoming coal operator, for \$71,207, was approved Sept. 16 by Frank McLaughlin, federal referee in bankruptcy, after a hearing in the federal building, Denver. The International Fuel Co. went to the wall with the crash of the Italian-American bank. The International owns a mine and 400 acres of coal land in Routt County.

Roy E. Mann and H. W. McLauthlin, stockholders of the National Fuel Co., filed a petition in the District Court at Denver, Sept. 16, asking the removal of H. Van Mater as receiver of the company, contending that his continued retention as receiver is highly prejudicial to the interests of the petitioners and others similarly situated. Van Mater, president of the company, was appointed receiver July 16 last, follow-

ing the institution of an action in the District Court by the International Trust Co. The petitioners charge that Van Mater, while acting as president, in several transactions took advantage of his position to reap profit to himself and his friends, relatives and associates at the expense of the company.

The copper industry in Arizona is about to turn to the use of Colorado steam size coal, and will take about 150,000 tons per year.

The state coal mine inspector's report, just issued, shows an increase of 60,000 tons in output for August contrasted with the same period a year ago. The lignite fields in northern Colorado show an increase of 32,000 tons, Fremont and El Paso counties 2,000 tons, Gunnison County (anthracite district), 7,000 tons; Huerfano County, in southern Colorado, 40,000 tons; Las Animas coking coal shows a decrease of 55,000 tons and Routt County bituminous shows an increase of 25,000 tons. A total of 11,419 men worked in and about the mines compared with 12,109 in the same period a year ago.

### ILLINOIS

August earnings of the Chicago & Eastern Illinois R.R., which draws much of its traffic from union soft-coal fields, will show an increase over August of last year, T. C. Powell, the president of the road announces. "Although the movement of coal in our territory," added Mr. Powell, "is 50 per cent below normal, the movement of freight is showing a steady increase. I am trying to work out a policy which will help diversify the nature of our traffic, which is now mostly mine products."

Mining operations have been resumed at Franco No. 3 mine, at Marion, giving employment to 300 men.

The Illinois Central R.R. handled out of the Herrin district 5,000 cars of coal during August, 1925, and 2,000 cars out of the Benton district. The Herrin district showed an increase of 40.3 per cent over the business done during August, 1924. The increase at Benton was 20 per cent and at Christopher it was 141.1 per cent.

C. C. Pervier, deputy internal revenue collector of Sheffield, while on a vacation recently put in his time supervising the sinking of a new coal shaft on the Pervier estate at Indian Hill. Lamb & Pollock did the work and a fine bed of coal was reached at a depth of 48 ft.

there being a strip of rock 38 ft. deep to be blasted which will provide a good roof. Hoisting equipment is being placed and coal is to be hoisted within two weeks. Mr. Pervier's time is completely filled with his work as a deputy internal revenue collector and he plans to lease the mine when everything is set for operation.

### INDIANA

The Pike County Coal Co., which owns and operates the Atlas No. 1 and No. 3 mines, in Petersburg, has issued orders that No. 3 mine, which has been idle since April 1, will start Oct. 1 with a full force of men. Work of cleaning the mine preparatory to resuming operations has been started. The No. 1 mine has operated almost every day since Aug. 1. It is the largest mine in Indiana south of the Baltimore & Ohio R.R.

A threatened strike of miners in the Terre Haute field using the Big Four R.R. miners' train to mines west of that city, was averted Sept. 22 when it was agreed that the railroad thereafter would permit miners to board and leave the train at the customary points. About 340 miners were idle Sept. 21 when the train failed to stop at two points where previously it had been customary to pick up men. A strike had seemed imminent when the railroad announced that in the future miners would have to board and leave the train at the Terre Haute station, discontinuing two stops used about fifteen years. The miners in a mass meeting Sept. 20 decided to meet the train at the usual places. The miners' train committee made immediate efforts to bring about an agreement with the railroad company and a written agreement will be in effect soon.

### KANSAS

Val Mendichi, Mulberry merchant, who recently leased mine No. 14 of the Sheridan Coal Co., near Gross, signed an agreement with District 14, United Mine Workers, on Sept. 22, and work of cleaning up the mine preparatory to operating began immediately. Previously the district board of the union had published a warning to members to stay away from the mine, alleging that the lessee was seeking to employ men at less than contract scale.

Walter B. Greek, of Croweburg, charged with burglary and larceny for the alleged theft of dynamite from the magazine of Sheridan Coal Co. mine No. 12, was discharged at his preliminary hearing in the Pittsburg City

Court Sept. 23, when Andrew Allen, a representative of the Sheridan Company, the complaining witness, could not testify that any dynamite had been stolen, as other employees did the checking which showed a case of the explosive missing. Greek is under bond to appear for trial at the October term of the Crawford County District Court on a charge of attempting to dynamite the steam shovel of the Dunkirk Coal Co. near Croweburg several weeks ago. Bloodhounds trailed from the shovel to Greek's home and fingerprints on one of the sticks of dynamite correspond with Greek's the authorities assert. Fuses to the dynamite under the steam shovel had been lighted but went out before reaching the explosive.

Mark Knott and Frank Cumiskey, who have been independent operators of smaller properties, have leased No. 49 mine of the Central Coal & Coke Co., northeast of Frontenac. This mine, which employs 300 men, has been idle for three years and will have to undergo extensive repairs before production is resumed.

Chapon & Westerlin will reopen their mine near Chicopee early this month. It employs 125 men. The tippie at this mine burned a few years ago while the fight between the Howat followers and the international union was at its height. The cause of the fire was never determined. The tippie is being rebuilt preparatory to operating.

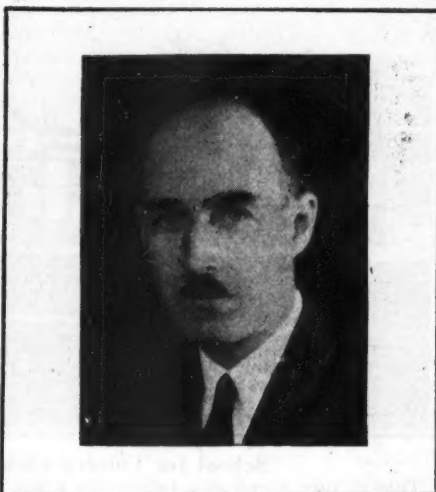
The Central Coal & Coke Co.'s mine No. 51, in the southeastern Kansas field, began loading coal Sept. 16, after having been closed down since last spring. The mine employs 350 men, when working at normal capacity. The company expects to have a full crew working within two or three weeks. The Central has one other shovel now operating in the field.

Mine No. 14 of the Sheridan Coal Co., in the southeastern Kansas field, which has been idle two years, will be reopened under lease before the end of September. Val Mendicki, of Mulberry, has leased the mine, and it is understood that three other miners of the district may take shares in the lease before production begins. The mine will employ between 150 and 200 men.

### KENTUCKY

The Dawson Daylight Coal Co., near Dawson Springs, has virtually completed its new tippie, burned some weeks ago, and is now installing motors, screens, conveyors, etc., and will soon be able to go ahead with full preparation. During the interval a temporary loading arrangement has been in use.

The White Star Coal Co., White Star, has been sold by the American Light & Traction Co., of New York, to John L. Phillips, Ray B. Moss and W. L. Hammond at a cash price in excess of \$100,000. The property, which has been closed for a year, will be reopened immediately, affording employment to about 200 miners. The coal property embraces about 1,300 acres of fine



D. E. A. Charlton

Appointed manager of mining sales for the Goheen Corporation, of New Jersey, paint engineers, he assumed his new duties on Sept. 21. After several years of mining experience Mr. Charlton joined the editorial staff of *Engineering and Mining Journal-Press* in 1917, and assumed the post of managing editor in 1919. In August, 1922, he was transferred to the business department, becoming business manager in 1923. Charlton is a member of the A. I. M. E. and has been active in the affairs of the Institute. He also enjoys a reputation as a raconteur, his "Cousin Jack" stories being familiar to a wide circle of friends and acquaintances. Mr. Charlton makes his new headquarters at the New York office of the Goheen Corporation, at 331 Madison Avenue.

quality coal in the Mason-Harlan and Wallins Creek seams. The offices of the company will be moved from New York to Pineville immediately and the management of the company will be decided on at the first meeting of the new owners.

The Madison Coal Co., Central City, suffered the loss of three dwellings by fire early this month.

### MINNESOTA

The Berwind Fuel Co. is completing the installation of additional equipment at its briquetting plant at Superior that will nearly double its capacity. The management of the company is looking forward to marked expansion in demand for briquets from over the Northwest this fall and winter.

Thomas B. Harlan, representing the Fifth and Ninth district coal-mine owners of Illinois, is to hold a conference in St. Paul soon regarding the establishment of a coal barge line on the Upper Mississippi River. Major General Harry Taylor, head of the engineering corps of the army; Major Williams, district engineer, of St. Paul, and representatives of St. Paul interests will be in the conference. It is hoped to make some real progress in the matter. A coal barge line from the Twin Cities to a point about 75 miles south of St. Louis is proposed. The Minneapolis River Terminal Commission has made a report for a proposed harbor pool on the Mississippi to lock past St. Anthony Falls to a point some 12 miles north, giving a channel from the city to lower river points. It would be available for any boat that could use the 6-ft. chan-

nel now available to the government dam. Coal could be brought up the river from Ohio River points at a saving of \$2, it is asserted.

### NEW YORK

S. A. Wertheim, vice-president of Burns Bros., New York City, recently announced that directors are working on a plan for employee, ownership of Burns Bros. stock.

### OHIO

Two mines of the Massillon, Belmont & Rosemary Coal Co. in the eastern Ohio field resumed operations Sept. 22 after several months of idleness. The plants employ about 500 miners. The mines are in the Flushing district. The Meister mine at Lafferty, is reported as being prepared for resumption.

While the Southern Ohio Coal Exchange has passed out of existence as a functioning organization, Walter D. McKinney, the former secretary, with a small office force, is still on the job gathering statistics and sending out information to operators in the southern Ohio field. Liquidation of the affairs of the association has been going on by W. W. Metcalfe, who was named receiver several months ago. Figures collected by Mr. McKinney show that the output in the entire southern Ohio field during May was 15 per cent; in June 14 per cent; in July 15 per cent and in August 19 per cent of capacity. During August the Hocking Valley R.R. hauled 12 per cent of the capacity of mines on its line while the New York Central hauled 31 per cent of the capacity of mines on that road.

In the past six months there has been a large thinning down in the ranks of coal jobbers and brokers in Cincinnati. At the beginning of the year there were about 110 offices doing business on this side of the river and the other—in Covington, Ky., in particular. These have been reduced by about 25. Including members of firms and office employees about thirty have joined the Florida "gold" rush.

Mine No. 281 of the Ohio Collieries Co., located near Madoo, has been opened following an idleness of months. About 300 men have been given employment as a result. The mine is loading railroad fuel exclusively.

### OKLAHOMA

Officials of District 21 (Oklahoma) United Mine Workers, wired officials of District 14 at Pittsburg, Kan., on Sept. 22 that Oklahoma operators had sent agents to Columbus and Scammon, Kan., to recruit men to work in Oklahoma mines on the open-shop plan. The District 14 executive board replied that Kansas will not work in other than union mines. It then sent a circular to all locals warning against accepting employment in Oklahoma.

Fire of undetermined origin on Sept. 17 destroyed the wash house and engine

room of the Thomas Coal Co.'s mine near Blanco, 13 miles south of McAlester. Three men in the mine at the time of the fire escaped through the manway after they had detected the odor of smoke while inspecting the workings. The damage has been estimated at approximately \$4,000. Company officials decided to start repair work immediately and expected to have the mine working again within a week. About 50 men have been employed at this mine lately, though it is capable of employing 100 men.

The office of the Milton Coal Co., Milton, was destroyed by fire the first week in September.

### PENNSYLVANIA

Garwood mine of the Etna Connells-ville Coal Co., along the Monongahela Ry., near Allison, resumed operation on Sept. 25.

Tony Pezzi and Michele Bassi, convicted in the Cambria County Court of the murder of James Garman in a hold-up near Colver on Oct. 11, 1924, were electrocuted in the Rockview penitentiary, Sept. 21. The two men, members of a gang of notorious robbers, held up a Cambria and Indiana train at Concrete Bridge, shot Garman, who was acting as an express messenger, and carried off the payroll of the Ebensburg Coal Co., amounting to \$33,000. Neither Pezzi nor Bassi made a confession. Both were said to be implicated in the robbery of the West End Coal Co. in Lackawanna County, July 20, 1923, when a messenger was killed and \$75,000 taken. Tony Burchanti and John Torti were electrocuted at Rockview for this offense on June 1, this year. Others of the gang are still at large.

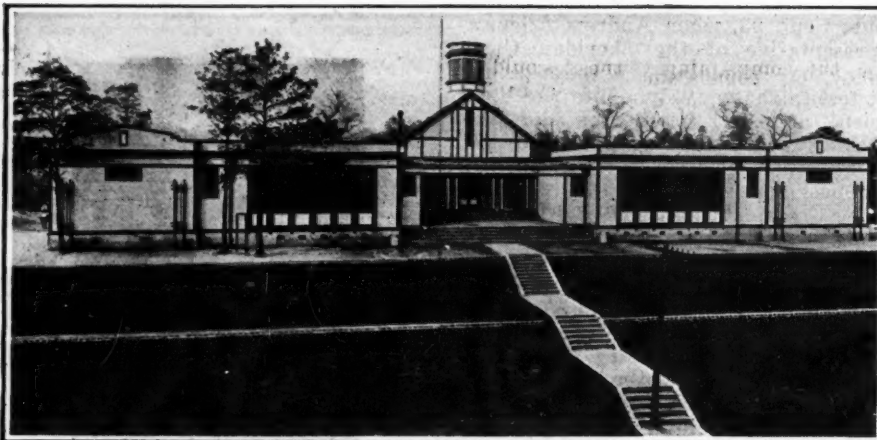
In the Connells-ville coke region there seems to be a growing unrest among mine laborers due to an impression that the price of coal has advanced \$6 or \$7 a ton, on account of the anthracite strike. This impression is created by propaganda spread by agitators from the United Mine Workers of America and from the I. W. W. The two miners of the Jamison Coal & Coke Co. near Perryopolis, that struck last week for restoration of the high peak wage scale, are still out and were joined Sept. 17 by most of the men at the Washington Coal & Coke Co. No. 1 plant at Star Junction, near Dawson.

The Eleanor mine of the Stern Coal & Coke Co., at Fairbanks, resumed operation last week, according to reports. The mine is located along the Monongahela Ry.

The Ontario Gas & Coal Co. has closed its mine in the Pigeon Creek Valley, near Bentleyville. Production through all this district, a strongly unionized section, is now down to practically nothing.

William Diamond, superintendent of the Davis Coal & Coke Co., of Boswell, has severed his connection with that concern and is now superintendent of Shaft No. 2, Buffalo Susquehanna Coal & Coke Co., of Du Bois.

The Penn-Lackawanna Coal Corporation has just closed leases taking over



School for Colored Children at Edgewater, Ala.

This picture was taken before the grass was planted in the yard or on the terraces. It is a good example of the neat, clean, orderly, businesslike way in which industrial companies in the "New South" are solving the problem of educating future citizens.

the Watt & Scurry mines adjoining its Simpson breaker, at Carbondale, on the New York, Ontario & Western R.R. Extensive inside developments have been undertaken and these mines have been fully equipped with the latest standard mining machinery. Upon resumption of mining operations at the Watt & Scurry mines the company will materially increase the output of its breaker at Carbondale.

### UTAH

Industrial conditions in Utah are declared by conservative leaders—bankers and others—to be better now than they have been in many years. Some say they are better than they have ever been since Utah became a state. The crops are the heaviest in years with excellent markets and strong prices.

### VIRGINIA

Directors of the Clinchfield Coal Corporation declared a dividend of \$1 a share on the common stock on Sept. 17. The last dividend paid was \$1.50 a share.

A Chicago syndicate is said to have leased for an indefinite period the properties of the Empire Anthracite Coal Corporation, located eight miles northwest of Pulaski, in southwest Virginia, and will take charge in October. It is understood that the output of about 400 tons daily will be doubled, necessitating the employment of more men in all departments. This is one of the few anthracite mining operations in south west Virginia, having been opened several years ago. The mines are connected with the Norfolk & Western Ry. by a narrow-gage road, the loading tippie being located in town. In connection with the tippie, a briquet plant is under construction and it is expected to be ready for operation soon.

The Chesapeake & Ohio R.R. is now engaged in locating the proposed branch line between Gilbert in Logan County and the Stonecoal branch of the same road in Raleigh County, the location having reached a point on the

Guyandotte River three miles above Pineville. The C. & O. has appropriated \$20,000,000 for expansion and development.

Judge A. Barley, of Alexandria, represents a Pennsylvania syndicate, the name of which is being withheld for the present, which is said to be prepared to spend \$300,000 or more in costs to determine the amount of semi-anthracite coal in the immediate region of Pulaski. In the event coal is found in sufficient quantities to justify the expenditure, the syndicate, Judge Barley says, will spend several millions of dollars in the development of this industry. Judge Barley has obtained options on property adjacent to Peppers Ferry and Blacksburg and is having a map made of the territory from the crest of Cloyds Mountain to Peppers tunnel, an area embracing about forty square miles.

M. C. Bartholomew, residuary receiver of the L. R. Steel Company, is preparing to put on a night shift at the Merrimac mines, Montgomery County, and to take them out of bankruptcy, as they are doing exceedingly well. When the first receivers of the Steel company finished their work the coal mines and some Florida property were left in bankruptcy and most of the stores were put into a solvent company.

### WASHINGTON

Development of the Hi-Carbon Coal Co.'s mine, a mile and a half east of Morton is under way, A. L. Patterson, chief owner and general manager of the company having made arrangements to rush work on the property. Operations at the mine are in charge of D. W. Watkins, superintendent of the Everett-Fisher Coal mine, two miles north of Morton. A double shift is installing machinery and completing a road for trucks to bring the output of the mine to the railroad. Preliminary development has gone to the extent of driving several shafts to prove the extent of the bed and the quality at different points. A tunnel 9 ft. wide at the bottom, 7 ft. at the top and 6½ ft. high is being driven.

## WEST VIRGINIA

A slight mine fire occurred Sept. 24 in mine No. 2 of the Cleveland-Morgantown Coal Co., in Scotts Run, but it was promptly extinguished by state mining men and others. Little lull in working time was experienced. A fall of coal broke an electric wire and caused a short-circuit.

In a deal closed in Buckhannon on Sept. 17 William N. Satterfield, of Green Spring, sold to A. W. Bigler of Clearfield, Pa.; W. M. Burns, of Houtzdale, Pa., and Ben Ellis, of Houtzdale, Pa., and associates 7,500 acres of coal land, including five seams. A tract of 1,500 acres consists of low-sulphur coal, it is reported. The tract fronts on the Pickens branch of the Baltimore & Ohio R.R. A mining town, tipples and other improvements, it is said, will be built within a short time. It was rumored that \$75,000 cash was the purchase price.

M. Benton Mitchell, manager of the Marion Division of the Bethlehem Mines Corporation, resigned that position recently, according to newspaper reports. A general shake-up has been made in the general office force, according to reports.

It is reported that E. S. McCullough, labor commissioner of the Pittsburgh (Pa.) Chamber of Commerce recently declined to accept his former position as labor commissioner for the Consolidation Coal Co. in connection with the new miners' organization. Mr. McCullough went to Pittsburgh about a month ago.

With an output of 561,000 tons of coal in August, mines of the Island Creek Coal Co. operating in the Logan field exceeded any month's production in the history of the company, the July output amounting to 535,000 tons. There was one day in August when the company loaded 23,700 tons of coal, likewise a record tonnage.

J. M. Turner, of Huntington, has leased the mine recently purchased by the Eastern Coal & Export Corporation, of Richmond, the lessee planning to reopen the mine and start production. The mine formerly was known as the V. S. Veasy mine and is on the Glen Jean & Eastern Ry., which connects with the Virginian at Paz.

In order to take care of the heavy coal movement through Williamson the Norfolk & Western Ry. has started a two-year construction program in the local yards at Williamson, which when completed will have cost two million dollars. The company plans to build a new round house, filtering plant and to make extensive trackage improvements.

New companies organized in West Virginia in August had an aggregate capitalization of \$1,150,000, there being five resident and one non-resident companies so organized. The new concerns are the Coalburg Colliery Corporation, of Charleston, capitalized at \$25,000; Betty Ann Block Coal Co., with 500 shares of no par value; War Ridge Smokeless Coal Co., of Clarksburg, with an authorized capital of \$100,000; Elk Garden Big Vein Coal Co., of Elk Garden with an authorized capital of \$15,-

000; Guardian Coal Co., of Webster Springs, with an authorized capital of \$1,000,000; Sheridan Coal Co., of Columbus, Ohio, with an authorized capital of \$10,000.

The Wise Pocahontas Coal Co., has increased its capital stock from \$50,000 to \$100,000 and the Coal Run Coal Co. from \$300,000 to \$500,000.

The following West Virginia coal concerns have surrendered their charters to the Secretary of State: Camp Block Coal Co., Hager Coal Co., Slack's Branch Coal Co., Rivesville Coal Co. and the D. K. R. Coal Co.

Development of the Pond Creek Coal Co., with a plant on the Waters of Dry Fork, McDowell County, in the Tug River District, has been practically completed, and the company has been steadily increasing its output. Production in August was 47,000 tons, an annual rate of something over half a million tons, which is about one-half of the planned capacity. This company was organized in February, 1923, following the sale to the Ford Motor Co. of the Original Pond Creek Coal Co. The new company began to produce coal in July, 1923, and in that year produced 69,000 tons and the next year 190,000 tons. It is stated that by the early part of 1926 the company should be up to its planned capacity of one million tons per year.

State Tax Commissioner Hall's tabulation on the sales tax returns for the last fiscal year shows that the coal industry paid a total tax of \$735,418.61, while the manufacturing industry paid \$727,842.82. In 1924 coal paid \$1,093,782.87 and manufacturing \$780,013.03. While the revenue from the coal industry decreased 32.76 per cent the manufacturing returns showed a loss of 6.69 per cent. The taxes collected for the last fiscal year were on the old rates. The Legislature of 1925 having revised the schedule of rates, heavier revenue is expected during the current fiscal year, with coal paying a slightly higher rate.

Production at the fifteen mines of the New River company in Fayette and Raleigh counties amounted to 208,000 tons in August, as compared with barely 200,000 tons in July, the August output being the largest monthly production of the company in the last two years. The company in August made a moderate profit. Since early in the year it had been operating at a loss. There is every indication that September will prove to be even a better month for production and returns.

It is reported that A. J. O'Neal, of Beckley, has leased the Neal Coal Co. at Lester, and will soon start operations. This mine has been closed for two years on account of the depression in the industry. Mr. O'Neal formerly was superintendent for the Ingram Branch Coal Co.

July saw another substantial increase in the shipments of smokeless coal, bringing the total for the first seven months of the year up to 24,530,118 tons, or an increase of 3,608,017 tons over the corresponding months of 1924. The increase in July of this

year alone over July, 1924, amounted to 804,062 tons, all smokeless fields showing a substantial gain but with the Pocahontas district leading, the net gain in that field amounting to 359,135 tons.

## WYOMING

Kemmerer Coal Co. mines Nos. 1, at Frontier, and 5, at Sublet, have adopted rock dusting to reduce danger of explosion to a minimum. Several cars of the dust arrived recently from Devil's Slide, Utah, where it is pulverized. No. 6 mine, which opened Sept. 16, also is rock dusted. Recently the company experimented with a dust made locally, but it proved unsuccessful.

## CANADA

The coal output of the Province of British Columbia for the first seven months of this year was 1,373,923 gross tons, as compared with 1,193,848 tons in the corresponding period of last year. The increase was due to greater activity in the Crow's Nest Pass field, which yielded 511,050 tons, as compared with 190,041 for the first seven months of last year, during four of which the mines were closed by a strike. The Vancouver Island mines produced 772,056 tons, as compared with 847,586 tons, and the Nicola-Princeton field 129,221 tons, as compared with 90,817 tons for the first seven months of 1924. The coke production of the province up to the end of July of this year was 200,843 tons, as compared with 146,217 tons during the corresponding period of last year.

Sigurd H. Burnstad, coal operator, of Round Hill, Alta., has assigned and the Canadian Credit Men's Trust Association is appointed custodian.

## Traffic

### Attack Rates to Bluefield

The Appalachian Power Co. and a number of other coal consumers and retail coal dealers in Bluefield, W. Va., and Glyn Lyn, Va., have joined in a complaint before the Interstate Commerce Commission attacking rates from the Pocahontas, Tug River, Thacker and Clinch Valley districts on the Norfolk & Western Ry. The petitioners ask for the establishment of commodity rates which shall not exceed certain distance tariff charges now published by the defendant carrier. The distance rates in question range from 23 to 73c. per ton less than the commodity rates assailed.

Members of the coal committee of the Indiana Chamber of Commerce met recently in Indianapolis with officials of the traffic department to prepare counter-proposals in the case to be presented to the carriers in the Indiana freight rate case. The carriers and the committee have each presented proposals, but no agreement has been reached. In case no decision is reached, the matter soon will be turned over to the Interstate Commerce Commission.

## Coming Meetings

**Illinois Coal Operators' Association.** Annual meeting Oct. 6, at Chicago, Ill. Secretary, C. E. McLaughlin, Fisher Bldg., Chicago, Ill.

**Alabama Mining Institute.** Annual meeting, Oct. 6, Birmingham, Ala. Secretary, J. L. Davidson, Birmingham, Ala. The Seventh Annual First-Aid Field Meet also will be held on this date.

**American Gas Association.** Annual meeting, Oct. 12-16, at Atlantic City (Steel Pier), N. J. Secretary-manager, Alexander Forward, 342 Madison Ave., New York City.

**National Conference of Business Paper Editors.** Annual meeting, Oct. 14 and 15, at Congress Hotel, Chicago, Ill. Secretary, D. G. Woolf, 334 Fourth Ave., New York City.

**Kanawha Coal Operators' Association.** Annual meeting, Oct. 15, at Kanawha Hotel, Charleston, W. Va. Secretary, D. C. Kennedy, Charleston, W. Va.

**Electric Power Club.** Fall meeting at Briarcliff Manor, N. Y., Oct. 19-22. Secretary, S. N. Clarkson, B. F. Keith Bldg., Cleveland, Ohio.

**American Welding Society.** Fall meeting, Oct. 21-23, Massachusetts Institute of Technology, Boston, Mass. Secretary, M. M. Kelly, 33 West 39th St., New York City.

**Canadian Institute of Mining and Metallurgy.** Annual western meeting, Nov. 3-5, Winnipeg, Manitoba, Can. Secretary, George C. Mackenzie, Drummond Bldg., Montreal, Que., Can.

**Illinois Mining Institute.** Fall meeting, Nov. 6 and 7 at West Frankfort, Ill. Secretary, Frank F. Tirre, St. Louis, Mo.

**Harlan County Coal Operators' Association.** Annual meeting, Nov. 18, at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

**American Society of Mechanical Engineers.** Annual meeting at New York City, Nov. 30-Dec. 3. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

**Fourth National Exposition of Power and Mechanical Engineering.** Nov. 30 to Dec. 5, at Grand Central Palace, New York City.

**Coal Mining Institute of America.** Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 604, Ebensburg, Pa.

## Obituary

**Jabez B. Hanford, 61,** for more than twenty years a leader in the coal industry in the Monongahela Valley, died at his home in Morgantown, W. Va., Sept. 22, of sarcoma. Mr. Hanford, who was born at King's Chapel, Staffordshire, England, had held nearly every sort of position in and about the mines. He took charge of the Elkins interests in 1905 in Monongalia and Preston counties and when those properties were disposed of in 1919 he became one of the organizers of the National Fuel Co. He served as executive officer of the concern until illness prevented further activity on his part. He served as a member of the executive board of the Coal Mining Institute of America, was one of the organizers of the Coal Mining Institute of West Virginia and was for three years its first president. He was also a member of the American Institute of Mining and Metallurgical Engineers.

**Lewis A. Hayden,** president of the Hayden Brothers Coal Corporation and for forty-one years a resident of Colorado, died suddenly of a heart attack at the company's office, 708 Tramway Building, Denver, Colo., Sept. 22. He leaves a wife, three sons and a daughter.

## New Companies

**The Le Flore Coal Co.,** Kansas City, Mo., capitalized at \$12,000, has been incorporated. The company is to mine, buy, sell and deal in coal. The incorporators are: W. L. Johnson, L. W. Johnson, and L. M. Johnson.

**The Chelsea Coal Co.,** Pittsburg, Kan., capitalization \$25,000, was granted a charter Sept. 22 by the Kansas Charter Board. The company has purchased the coal rights on 600 acres near Chelsea, Okla.,

and has ordered a steam shovel to place on the tract. The incorporators are: L. E. Compton, W. O. Myers, and J. F. Dowis, of Pittsburg, and J. A. Holland, of Mulberry, Kan. Sale of the coal will be handled by the Security Coal Co., with which Mr. Holland is connected, and which has sales offices in Kansas City, Mo.

**The Royalty Coal Co.** has been incorporated in Madisonville, Ky., with a capital stock of \$20,000, by Jesse Diamond, Jack Dozier and others.

**The Carman Coal Co.,** 123 Sixth Street, East Liverpool, Ohio, has been chartered

with an authorized capital of \$50,000 to deal in coal and coal mining equipment and machinery. Incorporators are Terry O. Carman, Alice G. Carman, La Pash Carman, James M. Haun and Charles W. Ferguson.

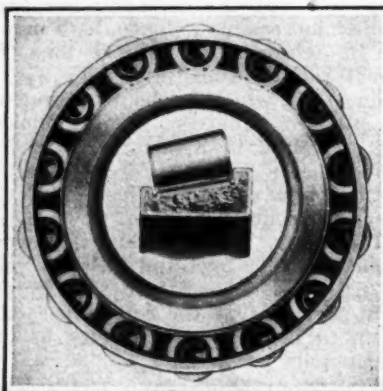
A charter has been granted to the **John-Ames Coal Co.** of Wilkes-Barre, Pa. The incorporators are E. D. Ames, Ralph Rymer and Paul G. Collins.

**The Bernard Coal Co.,** Cambridge, Ohio, has been chartered, with a capital of \$5,000, by Thomas R. Bernard, Ernest Larrick, R. R. Noble, Hewey Bailey and Arthur A. Olden.

## New Equipment

### Continuous Axial Alignment In New Roller Bearing

Improvements are often possible even in equipment of well established merit. The improved type of anti-friction bearing shown in the accompanying illustration has recently been introduced by the Timken Roller Bearing Co., of Canton, Ohio. This differs from the well known design of bearing of this



#### Self-Aligning Bearing

The rear flange of the cone is slightly undercut and the large end of the roller is made perpendicular to the roller center line. This renders the rollers self-aligning and admits of higher rotational speeds than were before possible.

kind in certain major details, yet retains all the advantages that characterized its predecessors.

In the new designs the roll is so formed that the surface of the larger end is at right angles to the center of the roll. The contact between the roll end and the rib of the cone which is slightly undercut thus lies in two areas, assuring continuous perfect axial alignment between bearing and roller. Similarly perfect line contact is maintained between the roller and both cone and cup.

Together with the cone and roller the cage has likewise been improved. Instead of the roll pockets being punched out one at a time resulting in slight misalignment due to metal stretching, all openings in the new cage are punched simultaneously. An inwardly turned flange at the small end of the cage further guards against distortion. The lateral edges of the cage are swedged inward so that the contour of the pocket sides conform to

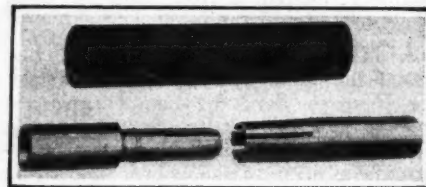
the contour of the roll. This process, known as winging, assures a perfect fit and smooth operation of the rollers.

Although the predecessor of this bearing built along the same general lines, had low frictional resistance, the improved type has still less. The self-aligning properties of the roll and cone admit of much higher running speeds and the hardness and excellent wearing qualities of the parts in contact reduce wear to such an extent that it is seldom necessary to disturb the original adjustment. These refinements render the new bearing particularly adaptable to all industrial applications especially those involving high speeds.

### Protected Connector Assists In Making Changes

An insulated plug and socket type of phosphor bronze connector supplied with a protecting sleeve of tight-fitting rubber tubing was recently placed on the market by the Ohio Brass Co., of Mansfield, Ohio. The connector is made so that cable ends can be soldered into the two parts. When the connector is thus arranged, the insulation on the cable is back-cut so that the rubber tubing which is slipped over the connector forms a continuous protecting surface. A ring on the plug end of the connector slips into a corresponding groove in the socket. In this manner the connector forms a tight contact that cannot easily be pulled apart in service.

This connector is expected to be a



#### Cable Connector Makes Quick Changes Easy

A strong spring contact and a holding ring make this connector a serviceable device on cables and electrical devices.

labor-saver for connecting cable ends which must occasionally be separated. Greater utility will be found for it, however, on the terminals of motors, switch leads, headlights and circuit appliances which must be removed from time to time for repairs or inspection.